WEST VIRGINIA UNIVERSITY

The 1963-64 Catalog

Robert F. Munn

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WEST VIRGINIA UNIVERSITY

The 1963-64 Catalog

WEST VIRGINIA UNIVERSITY BULLETIN

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CORRESPONDENCE

Correspondence should be addressed as follows:

ADMISSIONS AND RECORDS
Registrar

ALUMNI MATTERS
Alumni Secretary

Library
West Virginia University

CATALOG, ANNOUNCEMENTS
Registrar

EMPLOYMENT OF SENIORS AND ALUMNI
Placement Service

EXTENSION
Director of University Extension

HOUSING
On Campus: Director of Residence Halls
Off Campus: Housing Adviser

INFORMATION
Bureau of Public Information

MATTERS OF GENERAL UNIVERSITY INTEREST
The President

VETERANS AFFAIRS
Veterans Coordinator

WEST VIRGINIA UNIVERSITY, MORGANTOWN, W. VA.

SERIES 63, NO. 10-2 — WEST VIRGINIA UNIVERSITY BULLETIN — APRIL, 1963

The *West Virginia University Bulletin* is issued monthly throughout the year. Publications included are the *Announcements* of the College of Arts and Sciences, the College of Agriculture, Forestry, and Home Economics, the College of Commerce, the College of Education, the College of Engineering, the School of Journalism, the College of Law, the Medical Center (the School of Dentistry, the School of Medicine, the School of Nursing, the School of Pharmacy, the Basic Sciences), the School of Mines, the School of Music, the School of Physical and Health Education, Recreation, and Safety, the Graduate School, and the Summer Session; the *Catalog*; bulletins of the College of Engineering and the School of Mines; other scholarly and scientific publications; the *Proceedings* of the West Virginia Academy of Science; and *Victorian Poetry*.

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In keeping with the concept and objectives of the West Virginia Centennial, your State University is pleased to participate in the year-long celebration marking the 100th Anniversary of West Virginia's admission to the Union, and to share in this observance of our heritage and past achievements.

West Virginia University

MORGANTOWN

ESTABLISHED FEBRUARY 7, 1867

The Board of Governors

	TERM EXPIRES
JAMES H. SWADLEY, JR., *President,* Keyser	1967
WILLIAM G. THOMPSON, *Vice-President,* Montgomery	1964
CHARLES C. WISE, JR., *Secretary,* Charleston	1969
FRANK J. ZSOLDOS, Beckley	1963
RAYMOND E. SALVATI, Huntington	1965
FORREST H. KIRKPATRICK, Wheeling	1966
OKEY B. GLENN, Williamson	1968
CYRUS S. KUMP, Elkins	1970
K. DOUGLAS BOWERS, Beckley	1971

PAUL AUSBORN MILLER, *Chief Executive Officer,* Morgantown

The Board of Governors has charge of the educational, administrative, financial, and business affairs of the University and of Potomac State College of West Virginia University.

ADMINISTRATIVE OFFICERS

General

President, Paul Ausborn Miller, B.S.Agr., M.A., Ph.D., LL.D., (1962), 1938.
Provost, John Ford Golay, A.B., M.A., D.Phil.(Oxon.), (1961).
Vice President—Medical Center, Kenneth Earl Penrod, Ph.D., (1959).
Vice President—West Virginia Center for Appalachian Studies and Development, Ernest Joseph Nesius, B.S.A., M.S.A., Ph.D., (1963), 1960.
Comptroller and Director of Business Affairs, Louise Keener, B.A., (1954), 1929.
Registrar and Chairman of the Committee on Admissions, J. Everett Long., A.B., A.M., (1945), 1929.
Director of Libraries, Robert Ferguson Munn, A.B., M.A., Ph.D., (1957), 1952.
Director of Student Affairs, Joseph Clay Gluck, B.A., B.D., (1948), 1943.
Dean of Women, Betty Boyd, A.B., (1955), 1948.
Director of Development, Donovan Hiner Bond, B.S.J., M.A. (1959), 1946.
University Marshal, Sam Boyd, Jr., B.F.A., M.F.A., (1959), 1943.

Colleges, Schools, and Divisions

Agriculture, Forestry, and Home Economics, John Oliver Knapp, B.S.Agr., *Acting Dean,* (1963), 1917.
Arts and Sciences, Carl Maynard Frasure, Ph.D., *Dean,* (1961), 1927.
Commerce, Thomas Corwith Campbell, Jr., Ph.D., *Acting Dean,* (1961), 1948.
Dentistry, Kenneth Vincent Randolph, D.D.S., *Dean,* (1958), 1957.
Education, Earl Ruffner Boggs, Ph.D., *Dean,* (1960).
Engineering, Chester Abbo Arents, M.E., *Dean,* (1955).
Engineering Experiment Station, Chester Abbo Arents, M.E., *Director,* (1963), 1955.
Extension, University, Ernie Bevan McCue, M.A., *Director,* (1952), 1947.
Graduate, John Ford Golay, D.Phil.(Oxon.), *Dean,* (1961).
Journalism, Quintus Charles Wilson, Ph.D., *Dean,* (1961).
Law, Clyde Lemuel Colson, S.J.D., *Dean,* (1956), 1935.
Medicine, Clark Kendall Sleeth, M.D., *Dean,* (1961), 1935.
Mines, Charles Thomas Holland, M.S.E.M., *Dean,* (1961), 1930.
Music, Richard Edward Duncan, Ph.D., *Dean,* (1958).
Nursing, Dorothy Mae Major, Ed.D., *Dean,* (1960).
Pharmacy, Raphael Otto Bachmann, Ph.D., *Dean,* (1961).
Physical and Health Education, Recreation, and Safety, Ray Oscar Duncan, Ed.D., *Dean,* (1952).
Air Force R.O.T.C., Col. Louis A. Garvin, B.S., *Head,* (1960).
Army R.O.T.C., Col. Edwin W. Reynolds, B.S., *Head,* (1962).

Heads of Other Administrative Offices

Alumni Association, David Wood Jacobs, A.B., *Executive Secretary,* (1938).
Book Store, Ruth Eleanor Robinson, A.M., *Manager,* (1944), 1939.
Cooperative Extension Service, Ernest Joseph Nesius, Ph.D., *Director,* (1961).
Educational Broadcasting, C. Gregory Van Camp, A.B., *Director,* (1960).
Health Service, John Joseph Lawless, Ph.D., M.D., *Director,* (1944), 1935.
High School, University, Delmas Ferguson Miller, Ph.D., *Director,* (1960), 1949.
E. Grant Nine, M.S., *Principal,* (1960), 1956.
Intercollegiate Athletics, Robert Nathan Brown, A.B., *Director,* (1954), 1950.
Kanawha Valley Graduate Center, Walter Hamilton Walker, Ph.D., *Director,* (1960)

NOTE: The first date following titles indicates latest appointment. The second date indicates year of first appointment to a University position.

Labor Education Service, Stanley M. Hostler, M.A., *Director,* (1962), 1959.
Mountainlair, Robert F. McWhorter, M.S., *Director,* (1959).
Nursing Service, Audrey Edith Windemuth, M.S., *Director,* (1960).
Off-Campus Housing, Kenneth W. Shaffer, M.A., *Adviser,* (1961).
Parkersburg Branch, Todd H. Bullard, M.A., *Resident Director,* (1961), 1956.
Personnel, Thomas Joseph Wall, M.Litt., *Director,* (1960).
Physical Plant, Clifton Wharton Flenniken, Jr., B.S., *Director,* (1961).
Placement, Margaret Cornelia Ladwig, Ph.D., *Adviser,* (1949).
Public Information, David Wood Jacobs, A.B., *Director,* (1938).
Research and Development, Office of, John C. Ludlum, Ph.D., *Director,* (1963), 1946.
Residence Halls, Agnes B. Hovee, M.A., *Director,* (1956), 1950.
University Hospital, Eugene Leo Staples, M.S., *Director,* (1960).
University Publications, John Luchok, B.S.J., *Editor,* (1953), 1950.
Veterans Affairs and University Scholarships, Charles J. Sheehan, M.A., *Coordinator,* (1957).

Standing Committees

THE UNIVERSITY

ADMISSIONS: The Registrar and the Deans of all colleges and schools admitting freshmen.

BOARD OF GOVERNORS SCHOLARSHIPS:
Undergraduate: F. J. Holter, Earl R. Boggs, R. E. Duncan, J. C. Gluck, J. H. Henning, J. E. Long, and Q. C. Wilson.
Graduate: F. J. Holter, K. V. Randolph, M. E. Lugar, J. C. Stickney, and Bernard Scher.

PHYSICAL FACILITIES: C. L. Lazzell, C. A. Arents, T. C. Campbell, Jr., A. R. Collett, C. L. Colson, R. E. Duncan, R. O. Duncan, J. C. Gluck, C. T. Holland, Louise Keener, J. E. Long, R. F. Munn, and E. J. Nesius.

SPACE ALLOCATION: A. R. Collett, C. A. Arents, C. W. Flenniken, Jr., Louise Keener, J. E. Long, C. M. Morris, E. J. Nesius, and Edwin Orr.

THE SENATE

EXECUTIVE COMMITTEE: President Miller, Robert Stilwell, H. P. Simons, H. C. Evans, D. T. Watts, R. E. Foster, J. R. Williams, and J. E. Long.

COMMITTEES: N. M. Baughman, J. E. Ford, W. O. Morris, Dana Wells, and C. P. Yost.

ENGLISH PROFICIENCY: E. C. Dubbe, V. Q. Alvis, H. E. Kidder, A. R. Thomas, Jr., W. E. Vehse, Elisabeth Yearick, and Bernard Zimmermann.

EXTENSION: M. G. Brooks, J. A. Caruso, A. F. Galli, C. T. Holland, ex officio; E. B. McCue, ex officio; C. M. Morris, and E. J. Nesius, ex officio.

FACULTY HOUSING: J. N. Shafer, J. D. Adams, Wincie A. Carruth, Carl Dennler, Jr., and J. H. Schaub.

FACULTY WELFARE: W. W. Armentrout, A. J. Braff, L. H. Brown, W. G. Klingberg, and W. D. Lorensen.

INSTRUCTIONAL POLICIES AND PRACTICES: T. W. Gavett, A. C. Core, E. C. Jones, H. N. Kerr, O. M. Neal, Jr., Peter Popovich, and J. R. Young.

LIBRARY: R. F. Munn, M. T. Heald, Leo Horacek, G. L. Humphrey, D. W. Northup, and R. H. Theophilus.

MEMBERSHIP: H. N. Lindsay, J. D. McClung, and H. N. Rexroad.

PUBLICATIONS: V. G. Lilly, J. A. Caruso, E. L. Core, John Luchok, ex officio; R. J. Marshall, and G. H. Stewart.

RESEARCH: A. S. Pavlovic, J. T. Anderson, T. C. Campbell, Jr., H. W. Gould, J. B. Hickman, W. H. Jarecke, W. A. Koehler, ex officio; R. F. Krause, E. J. Nesius, ex officio, and E. H. Tryon.

STUDENT AFFAIRS: J. C. Gluck. Members to consist of the various chairmen of sub-committees on student affairs as appointed by the President.

Convocations: J. C. Gluck, B. R. McGregor, R. F. McWhorter, D. T. Watts; student members: Mary B. Defibaugh, Loleta M. Melton, David R. Vaughn, and Michael L. Yurko.

Cultural: Joseph C. Gluck, Sam Boyd, Jr., C. N. Cochran, R. E. Duncan, Louise Keener, and R. F. McWhorter; student members: Robert A. Arnott, Barry A. Berisford, Samuel L. Gall, Raymond E. Pierce, and Elizabeth Pokrywka.

Discipline: M. L. Vest, H. P. Pettigrew, Mary C. Buswell, and R. F. Krause.

Mountainlair Governing Board: J. C. Gluck, Betty Boyd, O. J. Burger, R. F. McWhorter, J. S. Scherlacher, and Dana Wells; student members: Dee Ann Cabo, Linda D. Fleming, James D. Patton, Margaret Richmond, and Adrian Glenn Toms.

New Residences: J. C. Gluck, L. R. Gribble, Stephen Harrick, and Cornelia Ladwig.

Off-Campus Schedules: J. C. Gluck, L. R. Gribble, and C. A. Arents.

Scholarships, Awards, and Student Financial Aids: J. C. Gluck, Betty Boyd, A. W. Goodspeed, J. E. Long, C. J. Sheehan, and R. M. White.

Social Affairs: J. C. Gluck, Betty Boyd, Beatrice Hurst, J. F. Clovis, R. F. McWhorter, C. W. Shetler; student members: Nancy Carolyn Brown, Elizabeth Pokrywka, Jerald Rosenthal, and George D. Treharne.

Student Fee Funds: J. C. Gluck, Betty Boyd; student members: Ralph J. Bean, Jr., William A. Dick, and Mary Kay Giboney.

Student Organizations: R. E. Foster, Wincie A. Carruth, G. R. Thorn; student members: Barbara Cook and Juhling McClung.

Student Publications: Q. C. Wilson, H. D. Collins, P. W. Gainer, F. E. Wright, and John Luchok; student members: David M. Conkle, Phoebe Fisher, and Lena E. Hasselbach.

Sub-Committee on Loans: J. C. Gluck, J. H. Clarke, C. L. Lazzell, and E. O. Roberts.

STUDENT ETHICS IN ACADEMIC WORK: W. D. Lorensen, C. W. Blissitt, F. E. Boyers, J. R. Carruth, J. B. Harley, and L. M. Sizer.

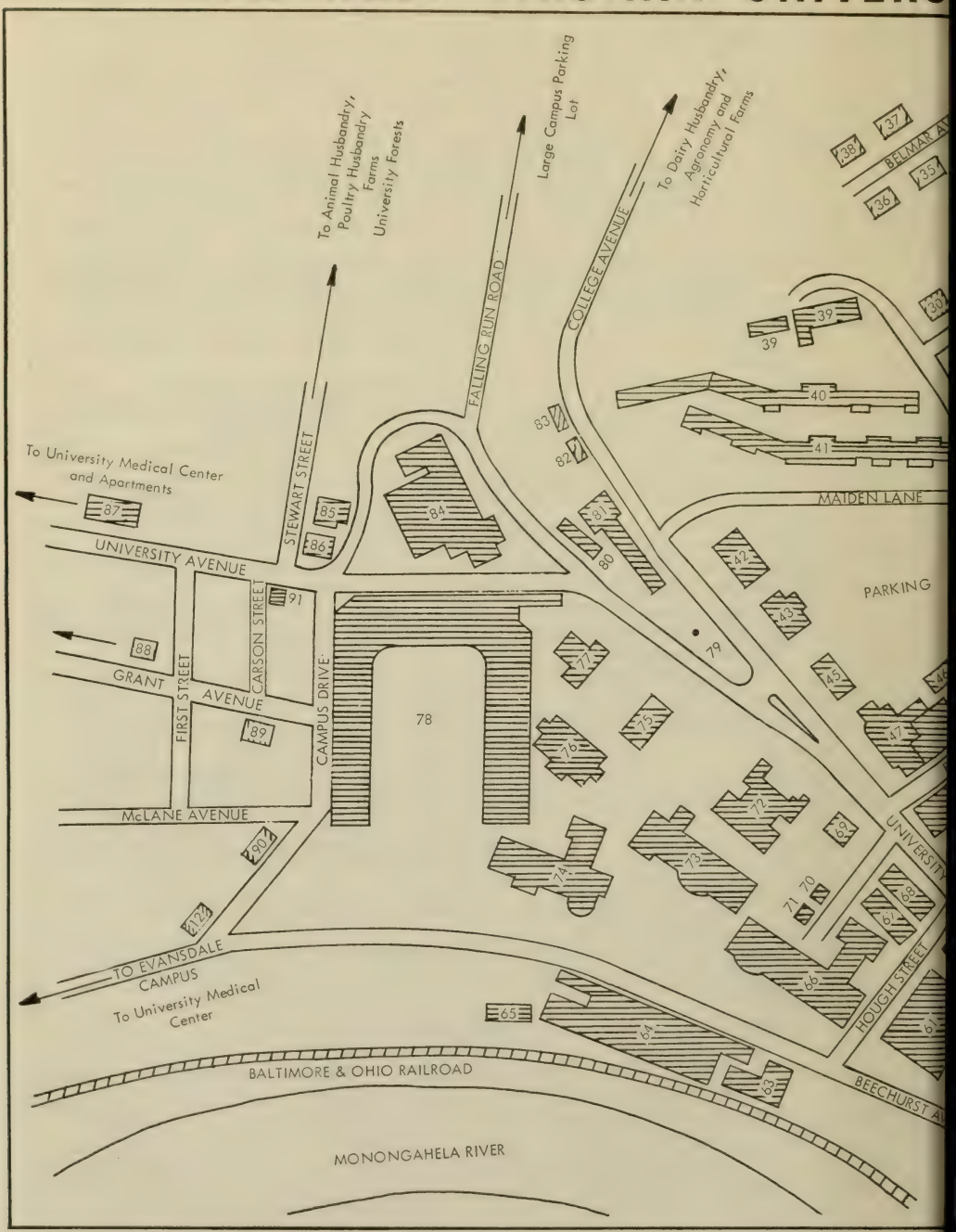
TEACHER EVALUATION: R. E. Sausen, R. S. Dunbar, Jr., Emile Frere, H. R. Hartzler, W. K. Katz, Gaynelle McKinney, D. W. H. MacDowell, and G. G. Pohlman.

TEACHER TRAINING: J. D. Clarkson, N. M. Baughman, E. R. Boggs, J. P. Brawner, C. N. Cochran, J. F. Clovis, J. H. Henning, Frank Herrera, Ruth D. Noer, G. E. Schafer, and John Semon.

TENURE AND RETIREMENT: G. E. Toben, C. R. Bishop, H. A. Gibbard, J. D. Graybeal, and M. L. Vest.

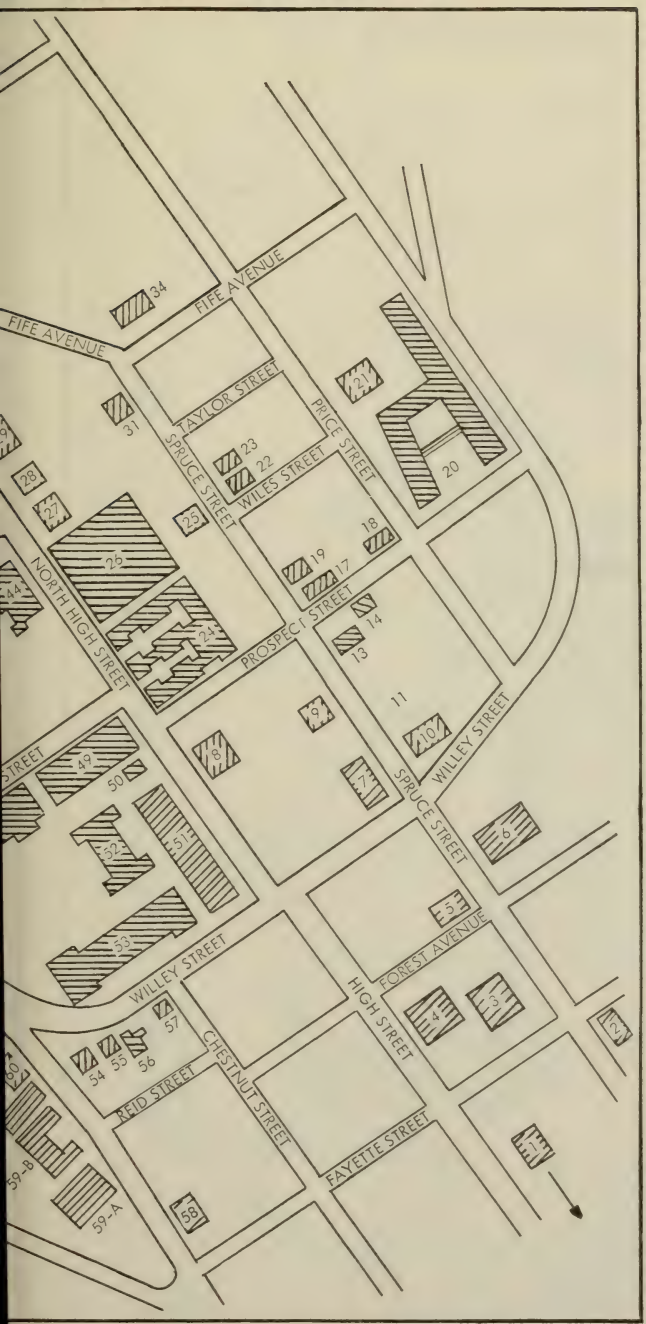
UNIVERSITY RESEARCH GRANTS: J. F. Golay, ex officio; J. L. Hall, Frances Krauskopf, A. D. Longhouse, J. N. Shafer, J. R. Williams, and D. T. Worrell.

THE WEST VIRGINIA UNIVERS



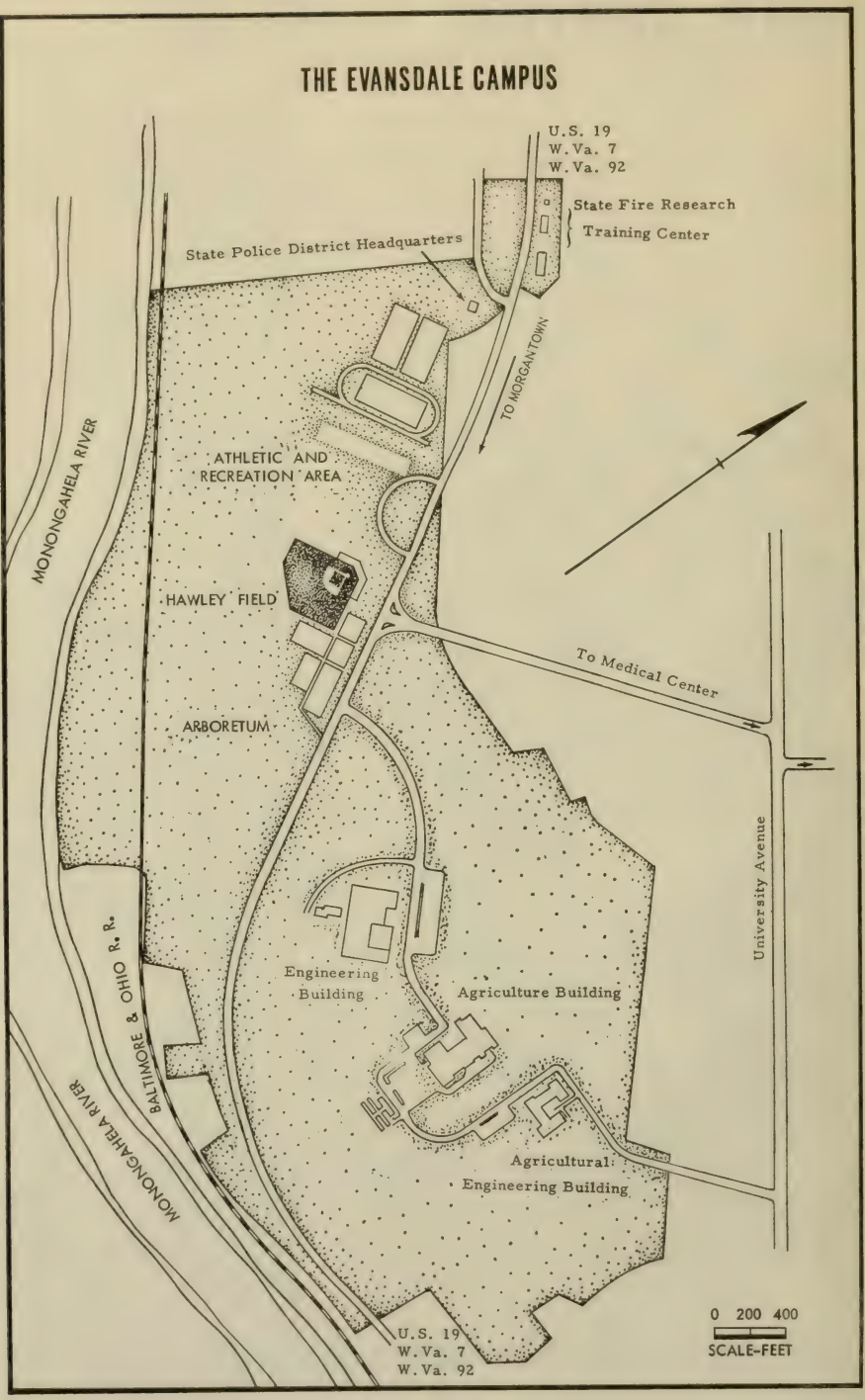
1. Christian Church – Disciples Fellowship
2. Spruce Street Methodist Church
3. Gamma Phi Beta Sorority
4. Baptist Church Student Fellowship
5. Greek Orthodox Church – Greek Ortho
6. Presbyterian Church – Westminister F

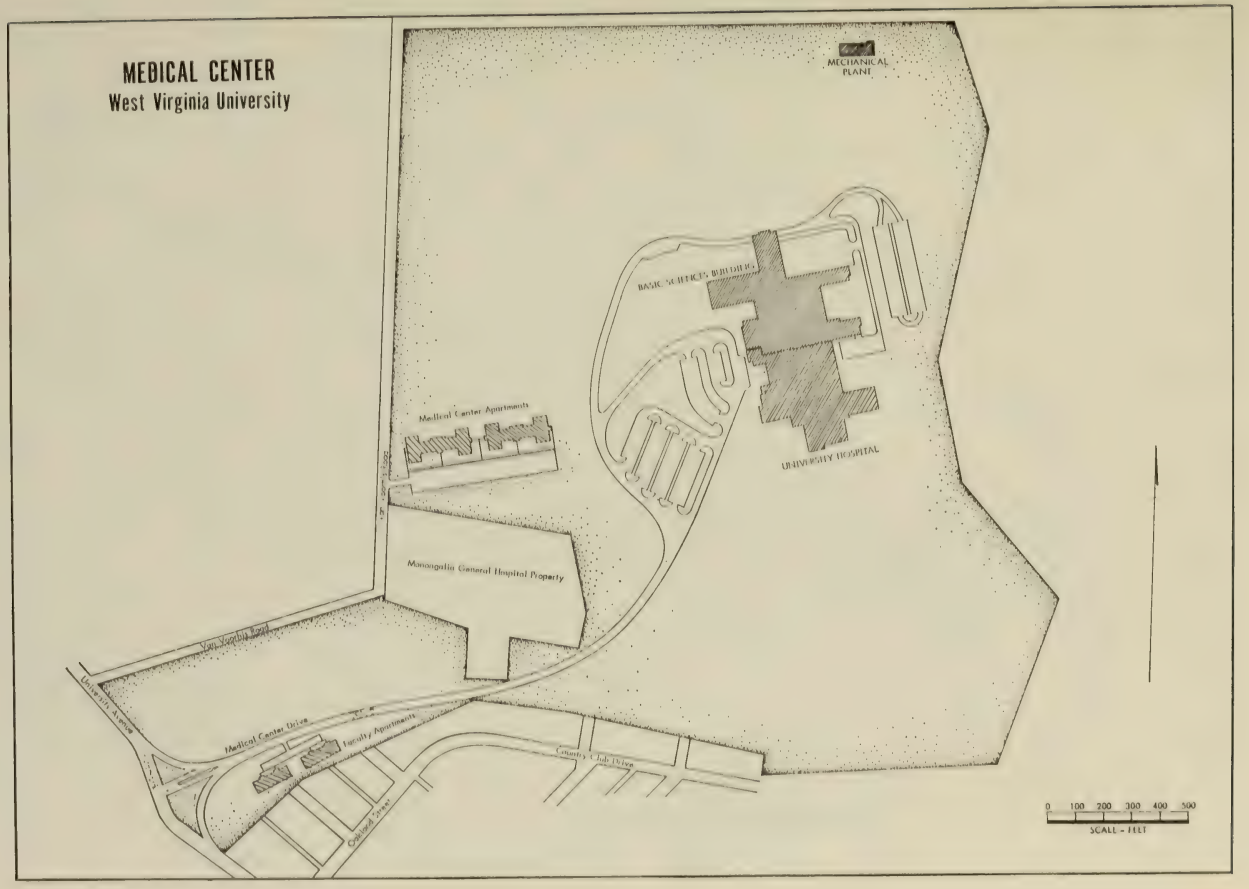
Y MAIN CAMPUS



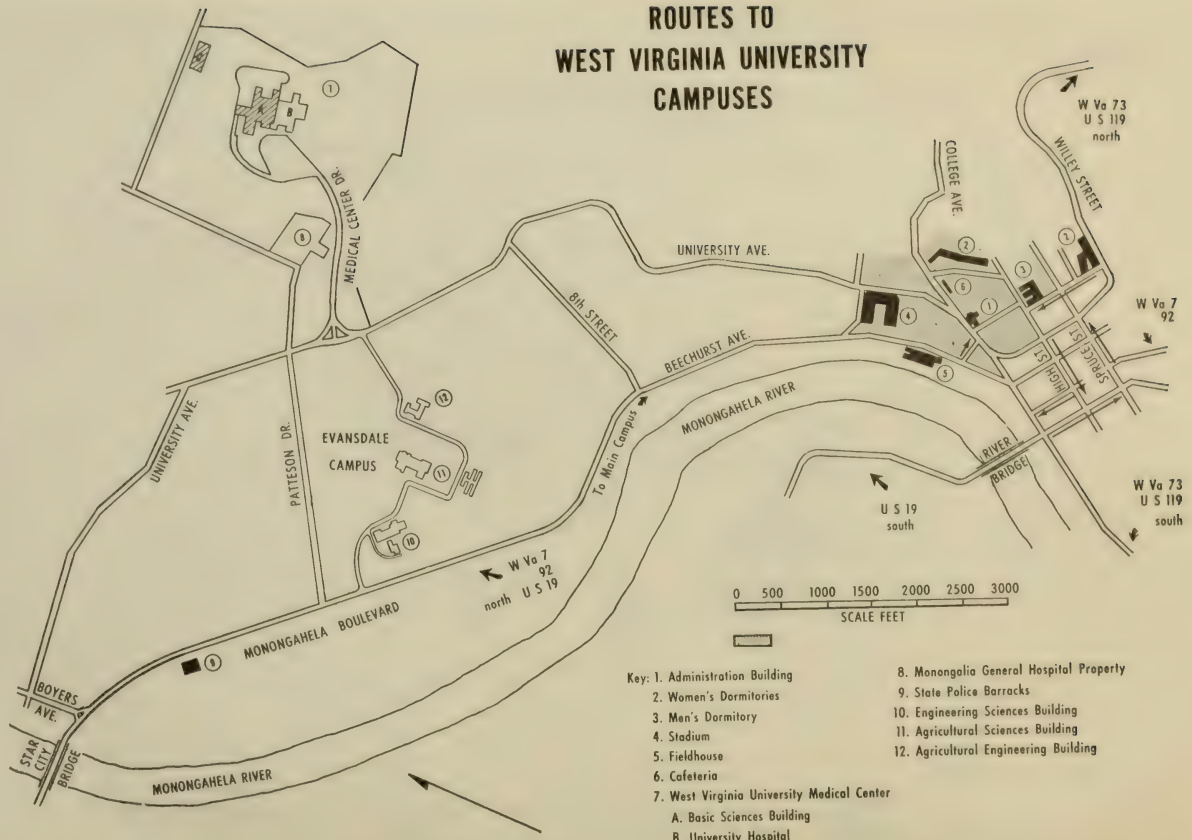
America

7. Episcopal Church – Canterbury Association
8. Chi Omega Sorority
9. Phi Kappa Sigma Fraternity
10. Alpha Phi Sorority
11. Spruce Street Parking Lot
12. Nursery School
13. Laurel Cottage
14. 284 Prospect
15.
16.
17. Kappa Kappa Gamma Sorority
18. Alpha Delta Pi Sorority
19. Alpha Xi Delta Sorority
20. Arnold Hall Residence and Apartments
21. Delta Gamma Sorority
22. Delta Delta Delta Sorority
23. Alpha Phi Delta Fraternity
24. Men's Hall
25. Theta Chi Fraternity
26. New Men's Hall
27. Delta Tau Delta Fraternity
28. Kappa Alpha Fraternity
29. Phi Sigma Kappa Fraternity
30. Sigma Chi Fraternity
31. Phi Sigma Delta Fraternity
32. Tau Kappa Epsilon Fraternity
33.
34. Phi Kappa Psi Fraternity
35. Sigma Nu Fraternity
36. Kappa Sigma Fraternity
37. Beta Theta Pi Fraternity
38. Phi Delta Theta Fraternity
39. Horticulture Greenhouses
40. Terrace Hall
41. Woman's Hall
42. Cafeteria
43. Health Center
44. Armory
45. Reynolds Hall
46. Speech Annex
47. Administration Building
48. Chemistry Building
49. Engineering Building No. 1
50. Glasscock Annex
51. Methodist Church – Wesley Foundation
52. Library
53. Mineral Industries Building
54. Kappa Delta Sorority
55. Sigma Phi Epsilon Fraternity
56. Home Management House
57. Alpha Sigma Phi Fraternity
58. Jewish Youth Center – Hillel Foundation
59-A St. Theresa Catholic Church
59-B Newman Club (Catholic youth group)
59-C St. John's Chapel
60. Pi Beta Phi Sorority
61. Music Building
62. Lutheran Church – Lutheran Student Association
63. Industrial Arts
64. Field House
65. Heating Plant
66. Physics Building
67. Bookstore
68. Law Building
69. President's Home
70. Counseling Center
71. Placement Office
72. Elizabeth Moore Hall
73. Armstrong Hall
74. Brooks Hall
75. Martin Hall
76. Woodburn Hall
77. Science Hall
78. Mountaineer Field
79. U.S.S. W.Va. Mast
80. Oglebay Hall Annex
81. Oglebay Hall
82. Residence Housing Office
83. 721 College Avenue
84. Mountainlair
85. Plant Pathology Greenhouse
86. Forestry Building
87. Evangelical United Brethren Church – Student Youth Fellowship
88. Alpha Gamma Rho Fraternity
89. Lambda Chi Alpha Fraternity
90. Pi Kappa Alpha Fraternity
91. Industrial Arts Annex


THE EVANSDALE CAMPUS
U.S. 19
W.Va. 7
W.Va. 92
State Fire Research
Training Center
State Police District Headquarters
TO MORGANTOWN
MONONGAHELA RIVER
ATHLETIC AND
RECREATION AREA
HAWLEY FIELD
To Medical Center
ARBORETUM
University Avenue
Engineering
Building
Agriculture Building
BALTIMORE & OHIO R. R.
MONONGAHELA RIVER
Agricultural
Engineering Building
U.S. 19
W.Va. 7
W.Va. 92
0 200 400
SCALE-FEET


MEDICAL CENTER
West Virginia University
MECHANICAL PLANT
BASIC SCIENCES BUILDING
UNIVERSITY HOSPITAL
Medical Center Apartments
Monongalia General Hospital Property
Van Voorhis Road
University Avenue
Medical Center Drive
Faculty Apartments
Country Club Drive
Oakland Street
0 100 200 300 400 500
SCALE - FEET

ROUTES TO WEST VIRGINIA UNIVERSITY CAMPUSES



Key: 1. Administration Building
2. Women's Dormitories
3. Men's Dormitory
4. Stadium
5. Fieldhouse
6. Cafeteria
7. West Virginia University Medical Center
   A. Basic Sciences Building
   B. University Hospital
   C. Mechanical Plant
8. Monongalia General Hospital Property
9. State Police Barracks
10. Engineering Sciences Building
11. Agricultural Sciences Building
12. Agricultural Engineering Building

Part I

HISTORY, DESCRIPTION, AND ORGANIZATION

History

West Virginia University was founded as a result of the Congressional Land-Grant (Morrill) Act of July 2, 1862, originally proposed in Congress for the benefit of agriculture and the mechanic arts. The State Legislature accepted conditions of the Act on October 3, 1862. Because of the State's questionable wartime status, the Legislature later specifically requested that the Act's benefits be extended to West Virginia. This was done by Congress on April 19, 1864, with the issuance of 150,000 acres in land scrip for public tracts, principally in Iowa and Minnesota.

The trustees of Monongalia Academy, on January 9, 1866, offered its property to the State, including the site and other property of nearby Woodburn Female Seminary, appraised at $51,000, on condition that the proposed college "be located permanently at or near Morgantown." The Legislature accepted the offer February 7, 1867, and established the "Agricultural College of West Virginia."

Government and control of the "Agricultural College" were vested in a Board of Visitors composed of one member from each of the State's eleven senatorial districts. In response to requests from President Alexander Martin, the Legislature, by an act of December 4, 1868, changed the name of the "Agricultural College" to "West Virginia University." At the same time the name of the controlling body was changed from "Board of Visitors" to "Board of Regents." Primarily to serve political purposes, the number of regents was changed from time to time until 1919, when government and control were vested in a State Board of Education of five members, including the State superintendent of free schools as the ex officio chairman. This plan was unsatisfactory, and an act of April 14, 1927, vested control of the University's academic matters in a Board of Governors of seven members. In 1947, the Board was increased to nine members, and made responsible for both academic and financial affairs of the University.

Right up to the end of the century, supporters of the institution were divided on whether to work for a "State-supported University," or a "first-class State-supported college." Until the early 1890's, the "College Plan" dominated, with "departments" and "schools" functioning autonomously, and with professors generally occupying "chairs" and operating provincially.

But the Hatch Act (1887) and the Second Morrill Act (1890) stimulated more progressive thinking among leaders in higher education. Many of them who were familiar with European systems (including the University's President, James L. Goodknight) helped bring the "University Plan" into the ascendancy. In 1895 President Goodknight set out to convert the "University" into just that.

ORIGIN OF THE SCHOOLS AND COLLEGES

The eight Academy Schools, five Technical and Professional Schools, and four Special Courses were organized into four colleges, each with a dean: Arts and Sciences, Powell B. Reynolds; Engineering and Mechanic Arts, William S. Aldrich; Agriculture, John A. Meyers; and Law, Judge Okey Johnson. The School of Music was established in 1897, a "Summer Quarter" or "Continuous Session" in 1898, and a College of Medicine in 1900.

Both the College of Medicine and the Summer Quarter were discontinued in 1901. Beginning in 1897 the College of Arts and Sciences and the College of Engineering and Mechanic Arts functioned without deans and through more or less autonomous departments and schools to 1911 when the deanships were revived. In 1902 a semblance of the "Summer Quarter" was revived in the "Summer School," which in 1932 became the "Summer Session." Alternating between a department and a school organization since 1867, Military Science and Tactics became a division in 1911. The arrangement made in 1903 with the College of Physicians and Surgeons, Baltimore, for maintaining a University College of Medicine proved unsatisfactory. It was discontinued in 1910, and the "Medical Sciences" were offered

in a department of the College of Arts and Sciences to 1912 when the School of Medicine was established. In 1914 a Department of Pharmacy was established in the School of Medicine. In the same year the the Department of Home Economics, previously a unit in the College of Arts and Sciences, was transferred to the College of Agriculture. The Division of Agricultural Extension was organized in 1912 and the Division of Mining and Industrial Extension in 1914.

The building program inaugurated in 1917 brought additional expansions and curricular offerings. Among the former were the Engineering Experiment Station, 1921, and the School of Mines, 1926, which in 1930 became an independent unit. In 1927 the courses in education were transferred from the College of Arts and Sciences to the newly created College of Education, and in 1928 the Division of Physical Education was established. Offerings were being improved meanwhile through additional and better-qualified personnel. In January, 1930, the Board of Governors established a Graduate School authorized to offer graduate degrees in certain indicated fields.

The Depression (1929-35) slowed expansion somewhat, but progress was resumed in 1936 when the Department of Pharmacy was discontinued as a unit of the School of Medicine and converted to the College of Pharmacy. The next year the Division of Physical Education and the Department of Athletics were combined into the School of Physical Education and Athletics. At the same time (1937), the course in Forestry, begun in 1935 as a two-year curriculum in the College of Agriculture, was expanded to a four-year course, and the name of the sponsoring unit was changed to the College of Agriculture, Forestry, and Home Economics. In 1939 the Department of Journalism was discontinued as a unit in the College of Arts and Sciences and became the School of Journalism. The same year a Department of Art was established in the College of Arts and Sciences. In 1940 the College was further enlarged by the inclusion of a Department of Social Administration, authorized to offer a graduate curriculum leading to the professional Certificate of Social Work. In 1941 the name was changed to the Department of Social Work, and in 1944 the Department was authorized to establish an undergraduate curriculum in social work leading to the Bachelor of Science Degree.

In 1950 the Board of Governors authorized the degree of Master of Social Work and approved the establishment of a two-year curriculum leading to that degree. In 1944 a four-year course leading to the B.S. (Medical Technology) Degree was approved to be given jointly by the College of Arts and Sciences and the School of Medicine. In 1948 the Board of Governors approved an order authorizing the College of Arts and Sciences to offer a general course as an integral part of its curriculum and an optional lower-division program of general studies. In 1951, the Department of Economics and Business Administration was discontinued as a unit in the College of Arts and Sciences and converted into the College of Commerce. In 1953 the School of Dentistry was established. In 1958, the College of Pharmacy was reconverted into the School of Pharmacy, marking the integration of the School into the University's expanding medical sciences program. The University's Kanawha Valley Graduate Center of Science and Engineering was established at Institute, with the first classes beginning in September of 1958. In 1961 it was changed to Kanawha Valley Graduate Center of West Virginia University. In 1960 the School of Physical Education and Athletics was changed to the School of Physical and Health Education, Recreation, and Safety. In 1960 the School of Nursing was established.

PRESIDENTS OF THE UNIVERSITY

The University has had fifteen regular presidents, eleven acting presidents, and one chairman of the faculty. Together with their periods of service, they were Alexander Martin, April 3, 1867-August 12, 1875; Vice-president John Work Scott (acting), September 6, 1875-March 27, 1877; John Rhey Thompson, March 28, 1877-March 12, 1881; Vice-president Daniel Boardman Purinton (acting) March 13, 1881-1882; William Lyne Wilson, 1882-1883; Robert Carter Berkeley (Chairman of the faculty), 1883-1885; Eli Marsh Turner, 1885-July 21, 1893; Vice-President Powell Benton Reynolds (acting), July 24, 1893-1895; James L. Goodknight, 1895-August 6, 1897; (from August 6 to August 19, 1897, Vice-president Robert Allen Armstrong was nominally acting president); Jerome Hall Raymond, August 10, 1897-1901; Powell Benton Reynolds (acting), March 21, 1901-July 31, 1901; Daniel

Boardman Purinton, August 1, 1901-July 31, 1911; Alexander R. Whitehill (acting), August 1, 1911-September 30, 1911; Thomas Edward Hodges, October, 1911-August 31, 1914; Frank Butler Trotter (acting), July 9, 1914-1916; 1916-1928; John Roscoe Turner, 1928-December 31, 1934; Robert Allen Armstrong (acting), January 1, 1935-September 30, 1935; Chauncey Samuel Boucher, October 1, 1935-August 31, 1938; Charles Elmer Lawall (acting), September 1, 1938-1939; 1939-August 31, 1945; Charles Thompson Neff, Jr., (acting), September 1, 1945-1946; Irvin Stewart 1946-August 24, 1958; Clyde Lemuel Colson (acting), August 26, 1958-January 31, 1959; Elvis Jacob Stahr, Jr., February 1, 1959-January 25, 1961; Clyde Lemuel Colson (acting), January 26, 1961-December 31, 1961; Paul Ausborn Miller, January 1, 1962.

Description

THE PHYSICAL PLANT

West Virginia University's Main Campus comprises 74.35 acres near the center of Morgantown. Its Evansdale Campus, about one and one-half miles northwest of the Main Campus, consists of approximately 260 acres and was acquired in 1948. This campus is the site of the new buildings of the Colleges of Agriculture and Engineering, occupied in the Spring of 1961. In 1951, the Monongalia County Court deeded to the University approximately 85 acres of land adjoining 55 acres already owned by the University. This 140-acre tract, about one and one-half miles north of the Main Campus, is the site of the new University Medical Center. In 1960 the University acquired 58.05 additional acres in the area across a road from the Medical Center Mechanical Plant. This acreage is adjacent to 3 acres bequeathed to the University. Since 1960 property of 2.75 acres has been acquired. The first building of the Center, the Mechanical Plant, was completed in 1954. The Basic Sciences Building was opened for classes in September, 1957. Construction was completed on the University Hospital in December, 1959.

Much of the Main Campus is on high ground overlooking the Monongahela River and the surrounding countryside. The physical plant includes 54 state-owned buildings or structures on campus, five demonstration and experimental farms near Morgantown, four additional experimental farms and two Cooperative Extension centers located at suitable points throughout the State, a summer surveying camp for civil and mining engineering students, and a summer camp for forestry and biological science students. A new women's dormitory, Arnold Hall, was put into use in September, 1957, and an addition to Men's Hall, accommodating 250 students, in September, 1959.

In the summer of 1961 completion of a large housing project provided 188 apartments for faculty, staff, and students at the Medical Center, as well as 276 dormitory spaces for women students and 86 apartments for faculty, staff, and students on the Main Campus.

In the fall of 1962 three apartment buildings which house 24 families were completed on the College Park property of the University.

CAMPUS STRUCTURES

Structures on the three campuses, with the dates of their completion or acquisition, are: Martin Hall, 1870; Woodburn Hall, 1876; Science Hall, 1893; Armory, 1902; Administration Building (which was the old Library), 1902; President's Home, 1905; Heating Plant, 1906; Placement Office, 1914; Horticultural Greenhouse, 1915; Oglebay Hall, 1918; Women's Hall (the wings were added in 1935), 1919; Plant Pathology Greenhouse, 1920; Law Building, 1923; Speech Annex (was the University cafeteria until 1947, now houses scene shops of the Department of Speech and shops of the Department of Buildings and Grounds), 1924; Mountaineer Field, 1925; Hall of Chemistry, 1925; Elizabeth Moore Hall, 1928; Field House, 1929; University Library, 1931; Deahl Hall, to 1948 the "University Rural High School," 1933; Men's Hall, 1935; Oglebay Hall Annexes, 1933 and 1937; Reynolds Hall (formerly "Commencement Hall," completed in 1893), 1940; Mineral Industries Building, 1942; University Health Center, 1942; Terrace Hall, 1942; Home Management House, 1942; Forestry Building, 1946; Cafeteria, 1947; Mountainlair, 1948; Armstrong Hall, 1950; Brooks Hall, 1951; Physics Building, 1952;

Music Building, 1954; Arnold Hall, 1957; Medical Center Basic Sciences Building, 1957; Engineering Buildings Nos. 1 and 2, 1957; Men's Hall Addition, 1959; University Hospital, 1959; Honors House, 1960; Laurel Cottage, 1960; 719 College Avenue, 1960; Faculty Apartments A and B, Medical Center, 1961; Medical Center Apartments J and K, 1961; Arnold Hall Addition and Arnold Hall Apartments, 1961; Terrace Hall Addition, 1961; Engineering Sciences and Aero-Space, 1961; Agricultural Sciences, 1961; Agricultural Engineering, 1961; Greenhouses on Evansdale Campus, 1961.

LOCATION

The main campuses of the University are in Morgantown, Monongalia County, 80 miles southeast of Wheeling and 200 miles north of Charleston. The community is served by the Baltimore and Ohio Railroad (limousine service between Morgantown and Grafton), Lake Central Airlines, thirty truck systems and five bus lines, and W. Va. Routes 7, 73 and 92, and U. S. Routes 19 and 119. Morgantown is located on the Monongahela River, 72 miles south of Pittsburgh, Pa. Half of the population of the United States is within 500 miles of Morgantown.

ACCREDITATION

West Virginia University is a member of the North Central Association of Colleges and Secondary Schools. It is accredited by the North Central Association and various accrediting agencies.

FARMS

The farms, with dates of acquisition, are: Dairy Husbandry Farm, 175 acres (1899) and 29.5 acres (1941); Horticulture Farm, 62.5 acres (1916); Animal Husbandry Farm, 231 acres (1916) and 262.5 acres (1941), including a portion for Poultry Husbandry; Agronomy Farm, 178 acres (1961), transferred to the University by the City of Morgantown in exchange for the old Agronomy Farm and other considerations which are to be used for the extension of the Morgantown Airport; and Poultry Husbandry Farm, 20 acres (1916) now used by Dairy Husbandry, all near Morgantown; University Experiment Farm at Kearneysville, Jefferson County, 158 acres (1930); Reymann Memorial Farms at Wardensville, Hardy County, 930 acres (1917) and 57 acres (1953); Reedsville Experiment Farm, Preston County, 457 acres (1944); Ohio Valley branch, Mason County, 150 acres (1948); Tygart Valley Farm (Forestry), Randolph County, 495 acres (1949); Camp Russell Love Morris (Engineering), Preston County, 53.5 acres (1950).

The Cooperative Extension centers, with dates of establishment, are the State 4-H Camp at Jackson's Mill, Lewis County (1921), and the Recreation Center at Oglebay Park, Ohio County (1926).

THE ARBORETUM

Approximately 80 acres of mostly wooded land along the west side of Monongahela Boulevard were set aside in 1948 for growing trees, wildflowers, and other plants, and for their display for students of botany, forestry, horticulture, etc., as well as for the general public. Footpaths have been constructed to provide access to various parts of the Arboretum.

Organization

OPERATING FUNDS

Funds for operating the University's various divisions are derived from the following sources: (1) interest on the land-grant endowment of $129,600; (2) annual appropriations by the Legislature; (3) Federal Morrill-Nelson and Bankhead-Jones funds; (4) student activities fees; (5) Hatch Act, Amended; (6) Agricultural Extension Consolidated; (7) tuition of high school students paid by Monongalia County Board of Education; (8) income derived from sale of farm and dairy products,

as well as income from athletics, dormitories, dining halls, book store, student activities, hospital clinics, etc.; (9) grants by Federal agencies for special research and extension projects; (10) contributions by private benefactors for the support of scholarships, loan funds, and prizes, and (11) revenues from the State soft-drink tax dedicated to the establishment of a medical center for teaching and research in medicine, dentistry, nursing, and medical technology.

GOVERNMENT

Direction of educational, administrative, financial, and business affairs of the University is vested in the Board of Governors. The board is bipartisan and consists of nine members who are appointed by the Governor with staggered terms of service.

The University year is divided into two semesters of approximately eighteen weeks each and a Summer Session of two terms of five and six weeks.

Acting in an advisory capacity to the President and assisting him in carrying out established University policies is a *Council of Administration,* composed of the President, the Vice President-the Medical Center, the Registrar, the Comptroller, and the deans of all colleges and schools, as well as other administrative officers who may be requested to take part in the deliberations of the Council.

The *University Senate,* a legislative body with jurisdiction over all academic matters that concern the entire University and all matters that concern more than one college or division, is composed of the President, the Vice President-the Medical Center, the Registrar, all professors, associate professors, and assistant professors in all colleges, schools, and divisions, and all chairmen of departments.

The *Graduate Faculty,* composed of all members who teach courses on the graduate level, sets the specific requirements and standards of quality for admission to candidacy for graduate degrees and for the awarding of graduate degrees.

The *Committee on Student Affairs* acts as an integral part of the whole organization of the University. Its program is bound up with that of the University as a whole and is designed to serve the larger academic and social objectives of modern education. For a list of members, see page 7.

COLLEGES AND SCHOOLS

The components of the University, together with dates of establishment of the various colleges and schools, etc., follow:

Colleges: College of Arts and Sciences, 1895; College of Law, 1895; College of Engineering and Mechanic Arts, 1895 (changed to College of Engineering in 1960); College of Agriculture, 1895; College of Education, 1927; College of Pharmacy (changed to the School of Pharmacy in 1958), 1936; and the College of Commerce, 1952.

Schools: School of Music, 1897; the Summer Quarter, 1898-1900, Summer School, 1902-1931, and Summer Session, 1932; School of Medicine, 1912; School of Mines, 1926; Graduate School, 1930; School of Physical Education and Athletics, 1937; School of Physical and Health Education, Recreation, and Safety, 1960; School of Journalism, 1939; School of Dentistry, 1953; School of Pharmacy (formerly the College of Pharmacy), 1958, and School of Nursing, 1960.

Divisions: Division of Military Science and Tactics, 1911; Division of Military and Air Science and Tactics, 1949; Division of Military Science and Tactics and Air Science, 1955; Division of Military Science and Air Science, 1960; Division of Home Economics, 1937; and the Division of Forestry, 1937.

Experiment Stations and Research Bureaus: Agricultural Experiment Station, 1888; Engineering Experiment Station, 1921; Government Research Bureau, 1931-1935; Bureau for Government Research, 1949; the Bureau of Business Research, 1949, and the Coal Research Bureau, 1962.

Extension Service: Agricultural Extension (Cooperative Extension 1961), 1912; Mining and Industrial Extension, 1914; Education Extension, 1915; Liberal Arts Extension, 1916; University Extension, 1930; and the Institute of Industrial Relations, 1956.

The College of Agriculture, Forestry, and Home Economics; the College of Arts and Sciences, the College of Engineering; the School of Mines, the School

of Music, the School of Nursing, and the School of Physical and Health Education, Recreation, and Safety are all degree-granting units admitting freshmen. The College of Education, the College of Commerce, the School of Dentistry, the School of Journalism, the School of Medicine, and the School of Pharmacy are professional colleges and schools requiring from two to three years of academic training as a foundation for professional work. All graduate instruction is administered by the Graduate School through the Graduate Faculty.

THE SUMMER SESSION

The Summer Session is held from June through August. The session is made up of two terms—the first term of six weeks and the second term of five weeks.

University High School will be in session the first nine weeks for secondary-school student teaching, practice supervision, and observation. The University Laboratory Elementary School will be in session during the first six weeks for elementary school observation and practice supervision.

Requirements for admission and character of the work offered are the same for the Summer Session as for the regular academic year.

Credit may be obtained towards the Bachelor's, Master's, and toward the Doctorate. Offerings are varied from summer to summer so that students may complete work for the Master's Degree by attending summer sessions only.

For complete description of courses, see the *Summer Session Bulletin.*

UNIVERSITY EXTENSION

The work of this division is under the supervision of the Director of University Extension. The work given in extension courses corresponds in every particular to that given in the same courses on campus. Students taking extension courses for credit must satisfy all requirements for admission to the University and, before registering, must file with the Registrar of the University complete official transcripts of record.

The *maximum undergraduate credit* that may be counted toward any degree for extension work conducted by the University is 48 semester hours. The *maximum undergraduate credit* that may be counted toward a degree for extension work taken in other institutions is 30 semester hours. No more than 15 hours of work taken in *graduate extension courses* may be counted toward any degree, and of these only 8 semester hours may be in one field. Education majors are limited to 12 semester hours that may be counted toward the completion of the Master's Degree. No more than 8 of these hours can be taken in extension prior to earning 6 hours in Education *in residence* in the University. For other regulations on graduate extension for Education majors see the *Announcements* of the College of Education.

No University extension courses may be offered without the approval of the Director of University Extension. Library and laboratory facilities for each course must be approved by the Director and, in case of courses for graduate credit, by the Dean of the Graduate School. Reference books for the use of extension students may be borrowed from the University Library upon the order of the Director of University Extension, subject to the approval of the Library committee. Postal charges must be paid by the individual or groups for whom the books are borrowed.

A fee of $12 per semester hour is charged for each extension course offered.

For further information write to the Director of University Extension.

Labor Education Service

The purpose of the Labor Education Service of University Extension is to provide education to individuals and groups who request it.

While most of the work in Labor Education is with organized labor groups, the Service does offer help to other adult groups in such areas as consumer education, health, welfare and social security benefits, and economics. Persons desiring further information should write University Extension for more particulars.

Evening Education

The University offers a program of evening classes for the benefit of those who wish to continue their education beyond the high-school level and who are unable to attend the usual day classes.

All courses are taught by resident faculty members and carry full college residence credit. Many of these courses may be counted toward advanced degrees.

Guided Reading Courses (Correspondence)

The Extension Division offers twelve reading courses through correspondence. While these courses are offered in cooperation with the West Virginia Federation of Women's Clubs, any adult may enroll for any of these courses by applying to the Director of University Extension. The fee is $1 per course. The reader sends in short reports on the books he reads in each course. When the course has been satisfactorily completed, a progress card from the West Virginia University Extension Division is awarded. These courses carry no University credit but are designed to provide adults with some of the best reading materials in the areas covered through this program. The courses include: (1) World Affairs; (2) Modern America; (3) Psychology for Everyday Living; (4) Happy Family Relationships; (5) Novel and Biography; (6) Ideas in Conflict; (7) The Home Beautiful; (8) Design for Outdoor Living; (9) Leadership; (10) So You've Been Elected; (11) Science and the Modern Man, and (12) Something About Art.

INTERCOLLEGIATE ATHLETICS

The basic objectives of Intercollegiate Athletics at West Virginia University are:

1. To provide an opportunity for students highly skilled in athletic sports to develop their ability as a preparation for coaching positions, as teachers of physical education, and for their own physical, social, and emotional improvement.
2. To develop an understanding and an appreciation of the place which intercollegiate sports occupy in American culture and to develop sound educational attitudes toward sports.
3. To educate the student body in the appreciation of sports and the best way to enjoy them from the point of view of good sportsmanship.
4. To serve as a focal point for the morale, spirit, and loyalty of the students by providing a common meeting ground and enthusiasm.
5. To provide a wholesome program of sports in which students, alumni, and friends of the University may share, to the end that the loyalty of these groups to the University and its work may be constantly renewed, strengthened, and united.

Additional objectives of the Intercollegiate Athletic program are:

1. To set desirable examples of good physical skill, team play, sportsmanship, health habits, and other characteristics that go with skilled sports, both individual and team.
2. To provide a living laboratory of democracy in action, where all players are treated without favor or prejudice, to learn to respect the rights of others, obey the rules, and judge others for what they can do.
3. To broaden the social experience of players and spectators through travel, visiting other schools, and making the acquaintance of other young people of similar age.

Activities of the Department of Intercollegiate Athletics are administered, under the President of the University, by the Director of Intercollegiate Athletics and by the Athletic Council. The council is composed of seven members: four faculty, two alumni, and one student. The Dean of the School of Physical and Health Education, Recreation, and Safety serves as a member, and the Director of Athletics is the executive officer.

Instruction and training are given each year in the seasonal sports such as football, cross-country, basketball, wrestling, baseball, swimming, gymnastics, track, tennis, rifle, golf, and soccer. Matters concerning athletic eligibility regulations are decided by the Athletic Council. Scholastic eligibility regulations are established by the faculty of the University.

The rules and policies of the Southern Conference govern participation in intercollegiate athletics. In addition, sophomores must have a 1.5 grade-point average, juniors a 1.7 average, and seniors a 1.9 average.

INTRAMURAL PROGRAM

A broad intramural sports program for men and women is provided by the School of Physical and Health Education, Recreation, and Safety. It aims to encourage all students to participate in organized sports and wholesome recreation. Competition is promoted between student groups and individuals. Such natural groupings as classes, fraternities, sororities, dormitories, and other nonfraternity units form the basis for activity in competitive sports.

The following activities are conducted for men: soccer, badminton, cross-country, tennis, volleyball, handball, basketball, swimming, relays, golf, bowling, archery, basketball free throwing, softball, horseshoes, and outdoor track. Other activities may be organized when there is sufficient interest on the part of students and when facilities permit. Leagues are organized to accommodate fraternities, residence halls, and nonfraternity groups.

The following activities are conducted for women: volleyball, badminton, swimming, basketball, bowling, softball, table tennis, shuffleboard, archery, and tennis. Interclass tournaments for physical education majors are held in the following activities: volleyball, badminton, basketball, swimming, tennis, and softball. As the demand for more activities develops and when facilities become available, the program will be broadened.

ASSOCIATED INSTITUTIONS

The West Virginia Academy of Science was organized in 1924 to bring about closer affiliation among scientists of the State and to encourage the pursuit of scientific work in West Virginia. It is now a body of nearly five hundred persons who are interested in the service of science in the development of the State. Members are widely distributed throughout the State and adjoining states and are representative of colleges, high schools, and industries. A Collegiate Academy and a Junior Academy are sponsored by the Senior Academy. Annual meetings, held at the various institutions of higher learning, are divided into sections on biology, chemistry, geology and mining, mathematics and physics, education, psychology, and social sciences. The *Proceedings* of the annual meeting are published under the auspices of the University and the Academy.

The West Virginia Geological and Economic Survey, situated at West Virginia University, is governed by its own Commission and receives separate appropriations. The Geological Survey was founded by an Act of the Legislature in 1897 and has functioned consistently since that date. It is recognized as one of the leading State surveys.

One of its major purposes is to have members of the staff, specialists in their fields, investigate all natural resources, especially mineral resources of the State, and make results of the investigations available to the public in the form of written reports and maps.

Accomplishments of the Survey include geologic and topographic mapping of the State, as well as preparation of numerous special reports on the State's mineral and other natural resources. A new topographic mapping program, using aerial photographs, is well under way.

Core drill examinations of river terrace deposits and mineral investigations of rock strata are now being made with new equipment recently acquired.

A Section of Archeology has been included in the Survey's new activities.

The professional staff is composed of eight geologists, a sedimentary petrographer, a spectroscopist, an engineer-cartographer, a librarian-editor, a cartographer-draftsman, and an archeologist. The State Geologist is a member of the faculty and there is close cooperation between the Geological Survey and the Department of Geology of the University. Faculty members and geology graduate and undergraduate majors are employed on part-time bases. Three geologists from the U. S. Geological Survey are assigned here for cooperative studies on ground waters. The large collection of well cuttings and cores on file bring petroleum

geologists from major petroleum companies throughout the United States here to study them.

The Materials Laboratory of the State Road Commission is housed in the Engineering Sciences Building. Its work includes testing of all materials used by the Commission and research problems of road construction and maintenance in West Virginia. The State Road Commission and the College of Engineering cooperate on research and development programs.

Services

MOUNTAINLAIR

Mountainlair, the temporary University student center, has served the campus since 1948 in providing programs, activities, and services for the social, cultural, and recreational needs of the campus community. Located near the northeast end of Mountaineer Stadium, Mountainlair hosts major campus social events, and provides a special array of programs throughout the academic year. The Mountainlair calendar includes parties, dances, a popular film series, art displays, exhibits, and concerts.

The facilities include a large combination snack bar-cafeteria, four bowling lanes, a television area, a browsing lounge, a music listening room, meeting rooms, office space, and a large ballroom that also serves as a table tennis and billiards area

The key word at the Mountainlair information desk is "service." As the campus information center, this booth renders many worthwhile services to accommodate the University community.

The swimming pool in the building is of regulation intercollegiate size. In addition to providing recreational swimming facilities for University personnel, it serves as the home of the University swimming team and as a classroom for students majoring in physical education.

A professional staff devotes full time toward creating and maintaining a pleasing atmosphere for students. Diversified programs of activities and events are designed to fit student needs and interests. Special activities are planned by the Mountainlair Program Council. The Council includes student representatives of the various campus factions.

The building is open from 7 A.M. to midnight, Monday through Saturday, and from 12 noon to midnight, Sunday.

UNIVERSITY PERSONNEL DEPARTMENT

The University Personnel Department was created to provide a variety of personnel programs designed to assist the teaching, research, administrative, service, and maintenance units of the University in performing their vital functions. These programs include applicant recruiting, testing and employment of full-time, part-time and student employees; wage and salary administration for all non-academic employees; employee training, and special employee services.

The central Personnel Department is located to the rear of the Administration Building on the Main Campus. It may be reached by using the walkway which runs between Reynolds Hall and the Administration Building leading to the shop area of the Physical Plant Department. A branch office of the central Personnel Office is located in the University Hospital on the Medical Center Campus.

The employment office of the central personnel office and the Medical Center branch office are both concerned with University-wide employment opportunities existing on all campuses. Therefore, one application submitted at either convenient office is all that is necessary to be considered for any opportunity existing on any campus of the University.

Student Employment

Students seeking full-time or part-time employment on or off the campus will receive service and assistance from the Personnel Department. All employment op-

portunities will be posted each week on the bulletin boards located on all three campuses. Any student interested in a position which has been listed should go to either personnel office during the regular hours and apply for the position. If he is qualified he will be given a referral introduction to the prospective employer, whom he will contact directly.

EMPLOYMENT AND PLACEMENT

The Senior and Alumni Placement Service

The University Placement Service is maintained to provide assistance in vocational and job selection. This centralized service of the University does not end with placement of the student on his first job, but may be referred to at any time in the future.

The Placement Office is on Hunt Street across from the Physics Building. In addition to registration procedures, which include counseling in the techniques of job application, this service analyzes the changing market for graduates, assists alumni seeking promotion or change of position, cooperates with all individuals and agencies interested in placement, provides credentials for registered students to potential employers, and is engaged in continuous research in the interest of improving these services. A meeting place is provided for students seeking jobs, visiting company, governmental, and educational representatives, and faculty members whose comments are sought by employers.

A vocational library is maintained to assist any student having difficulty in deciding upon a career as well as to enable those graduating to review the kinds of opportunities available in their fileds.

The Placement Service cannot furnish credentials to commercial agencies.

HEALTH SERVICE

The University Health Service provides medical care to students of the University and supervises general campus conditions. The staff includes four full-time and two part-time physicians, seven nurses, two laboratory technicians, and clerical personnel. The University Pharmacy, housed in the Health Center, is managed by the School of Pharmacy. The departments of Pathology and Microbiology cooperate in the laboratory examination of diagnostic materials.

The Health Service occupies the University Health Center, constructed in 1942. This three-story building is centrally located, fronting on College Avenue adjacent to Reynolds Hall. It is built of brick and concrete and is fireproof throughout. On the first floor are the treatment rooms, offices, and pharmacy. The second floor is occupied by laboratory and X-ray departments, and offices for physicians. The third floor contains a well-equipped Infirmary.

The Health Service is in operation from 8:00 A.M. to 5:00 P.M. daily except Saturday and Sundays. Saturday hours are 8:00 A.M. to noon. Physicians are in attendance from 9:00 A.M. to 12:00 M. and 2:00 P.M. to 5:00 P.M. A nurse is present at all times in the Infirmary, and a University physician can always be reached by calling the Health Service, Extension U294 on the University exchange.

Each officially enrolled University student pays a fee which provides for medical consultation and advice from University physicians. Moderate additional charges are made for room calls, X-rays, laboratory tests, minor operations, treatment of fractures, and drugs furnished by the Health Service or Pharmacy.

The Health Service gives special physical examinations to students in competitive athletics, to University food handlers, to employees of the Physical Plant Department, and to other groups as occasion may arise.

The Infirmary

Students who need bed care for medical illness are hospitalized in the University Infirmary. The Infirmary is open only to full-time students. It is the policy of the Health Service to have all students requiring such care in the Infirmary. Students hospitalized in the Infirmary are under the care of Health Service physicians, although other qualifed physicians may be seen in consultation when necessary. Patients will be admitted and discharged on the order of Health Service physicians.

Upon admission to the Infirmary the student receives two days of hospitalization without charge except for laboratory, X-ray, special medications, and private duty nurse fees. No additional charge is made for general nursing care, dressings, routine medications as commonly supplied by the Health Service, and food as ordered by the physician in charge. Laboratory examinations, X-rays, penicillin, and similar medication will be charged at the usual Health Service rate to students. Special nurses, when necessary, are at the expense of the student.

A student may not receive more than thirty days hospitalization for any one illness. Patients are to leave when discharged by the University physicians. When it becomes evident that a student's illness will be so prolonged as to prevent his completing work of the current semester, he may be discharged from the Infirmary when the attending physician or the Director of the Health Service considers that he may be moved without danger to his health. The services as indicated above are subject to the availability of space in the Infirmary. Twenty-two beds at present are ready for use.

Student Insurance

A voluntary insurance plan is available to students to supplement the medical care offered by the Health Service. This plan provides for payment for hospitalization, surgeon, and consultant's fees, and other medical costs throughout the year, both in Morgantown and elsewhere. For cost of this insurance and details concerning coverage see the brochure available at the Health Service.

LIBRARY

The Library provides books and related materials for teaching, research, and cultural purposes. It maintains well-balanced collections in all subject fields included in the University curricula. Although primarily intended to supply the needs of the faculty and students of the University, the collections are available to any resident of West Virginia through the Library Extension Service Department. Facilities are available for the reproduction of material by microfilm and photostat.

The holdings of the University Libraries include over 500,000 books and government documents, 33,500 maps, 8,600 reels of microfilm and over 50,000 technical reports. The bulk of this material is housed in the General Library. The other major collections are the Agricultural-Engineering Library (36,000 volumes), the Law Library (65,000 volumes), and the Medical Center Library (59,000 volumes). Over 4,000 periodicals are received currently. The Library is a depository for the United States Atomic Energy Commission.

The West Virginia Collection, located in the General Library, contains over three million manuscripts, papers, and records relating to the history and development of the State. The Audio-Visual Department has some 1,800 educational films and 600 filmstrips, as well as 3,000 recordings.

During regular sessions, except on holidays and vacations, the Library is open from 7:55 A.M. to 10:00 P.M., Monday through Friday; from 7:55 A.M. to 5:00 P.M. on Saturdays; and from 2:00 P.M. to 10:00 P.M. on Sundays. During the Summer Session the weekday hours are from 7:55 A.M. to 9:00 P.M.; and only the Reserve Collection is available on Sundays from 2:00 to 5:00 P.M. During periods when the University is not in session, the hours are from 9:00 A.M. to 5:00 P.M. Monday through Friday; 9:00 A.M. to 12:00 noon Saturdays; closed all day Sundays and holidays (New Year's Day, Memorial Day, July 4, Thanksgiving Day, and Christmas Day). Changes in scheduled hours are posted in advance.

COMMUNICATIONS AND PUBLICATIONS

University Broadcasting

West Virginia University has been active in radio broadcasting since the early 1920's and in television during the past ten years.

The Department of Educational Broadcasting plans and produces programming from all areas of the University. The Cooperative Extension Service, the School of Journalism, the School of Music, and the Department of Speech are active in broadcasting activities.

Most programs are prepared for presentation over West Virginia's fifty-one commercial radio stations and nine television stations. Radio programs are prepared on campus in the two professionally-equipped studios. Most television presentations are recorded on video tape at area commercial and educational stations and distributed State-wide.

Students interested in broadcasting techniques and participation opportunities are offered actual experience in the preparation and presentation of University radio and television productions. Participation in these programs is through formal work in departments offering technique courses, as extracurricular activities, and as individual interest in production work.

Coverage of intercollegiate athletic events is under the supervision of the University's Athletic Council.

Publications

The following publications are issued regularly at the University:

1. The *West Virginia University Bulletin* is issued monthly. The series includes this *Catalog* and the *Announcements* of the various colleges, schools, divisions, and other occasional University publications.

2. The bulletins and circulars of the Agricultural Experiment Station.

3. The circulars of the Cooperative Extension Service, including *Farm Women's Club* leaflets, *4-H Suggestions, Treasures of the Trail,* and special pamphlets.

4. Cooperative News Service bulletins published weekly by the College of Agriculture, Forestry, and Home Economics.

5. The bulletins of the Engineering Experiment Station and of the School of Mines.

6. The *West Virginia Law Review,* official publication of the West Virginia Bar Association, edited by the faculty of the College of Law.

7. Miscellaneous publications under the title of *Philological Papers* or *Biological Studies.*

8. *The Student Directory,* annual directory of the student body, published by the University Book Store.

9. The annual *Proceedings* of the West Virginia Academy of Science.

10. The *West Virginia Fourth Estatesman,* a quarterly publication, edited by the faculty of the School of Journalism.

11. *Notes for New Mountaineers* is published under the direction of the Office of Publications. It is distributed to each member of the entering class, and to transfer students and foreign students.

12. *The Faculty Directory* is issued in the fall by the Office of Publications.

13. Miscellaneous publications of the Bureau for Government Research and the Bureau of Business Research.

14. The *Daily Athenaeum,* student-edited newspaper, is published Tuesday through Friday mornings by students of the School of Journalism. Heads of the editorial and business staffs are appointed by the University Committee on Student Publications from a list of eligible candidates certified by the Dean of the School of Journalism.

15. The *Monticola,* student yearbook, is published by upperclass students. The editorial and managerial staff is appointed by the University Committee on Student Publications.

16. *Victorian Poetry,* a critical journal of Victorian literature, is edited by the Department of English and the Office of Publications.

17. *The WVU Woman,* a handbook for and about the women students of the University, is published by Associated Women Students under the editorial supervision of the Office of Publications.

18. Annual publication of the Program for the *Festival of the Fine and Lively Arts,* an event sponsored by the School of Music and the College of Arts and Sciences The bulletin is printed under the supervision of the Office of Publications.

CAFETERIAS

The Main Campus Cafeteria is open for three meals daily except Sunday. There is no breakfast on Sunday. The cafeteria is open every weekend while school is in session. It observes all University holidays and opens and closes with the University schedule. Banquets and reservations can be arranged. The Evansdale Cafeteria, located in the Agricultural Sciences Building, is open for snacks from 7:30 A.M. to 4:30 P.M., Monday through Thursday, and closes at 4:00 P.M., Fridays. A hot meal is served from 11:30 A.M. through 1 P.M. daily.

BOOK STORES

The University operates on each campus a complete book and stationery store where students may purchase at discounted prices the books, supplies, and professional equipment needed in connection with their class work.

The Book Store on the Main Campus is located in the Book Store Building, with entrances from both Hunt Street and University Avenue. The Medical Center Branch Book Store is in the Basic Sciences Building, ground floor, across from the snack bar. The Evansdale Campus store is in the Engineering Sciences Building, ground floor, across from the student lounge. The store at the Parkersburg Branch is located adjacent to the classroom building, in the same building as the gymnasium.

The stores sell new and used textbooks and buy back from students their used textbooks. They stock books other than textbooks in all categories, art prints, general school supplies, office supply items, medical and engineering instruments and supplies, physical education uniforms for men and women, sporting goods, and University imprinted souvenir, gift and wearing apparel merchandise.

SPEECH AND HEARING REHABILITATION CLINIC

The Speech and Hearing Clinic, operated under the direction of the Department of Speech, offers services to all students in need of treatment for various types of speech disorders such as articulation, voice, and stuttering problems. In addition, work is done with students who have hearing problems. Non-students who have speech defects resulting from cleft palate, cerebral palsy, brain lesions, deafness, etc. also receive diagnostic workups and therapy if indicated. All work is in charge of professionally trained and fully qualified speech clinicians who have been certified for this type of work by the American Speech and Hearing Association. The Clinic contains specially designed rooms which permit individual as well as group therapy with children and adults. Therapists in training at both the undergraduate and graduate level participate in therapy under supervision.

FACULTY ORGANIZATIONS

American Association of University Professors. The West Virginia University chapter of American Association of University Professors has a membership of approximately one hundred and twenty. The present officers are: Wesley M. Bagby, president; Thomas W. Gavett, vice-president, and Mary Catherine Buswell, secretary.

The West Virginia University Faculty Club is composed of teaching and research staff and qualified friends of the University. Graduate assistants and registered nurses are eligible as junior members. With a varied program of social and cultural activities, the club promotes closer ties between the branches of the University. The club house is located at 511 North High Street. Officers are: Anthony Winston, president; Lillian Alfred, William W. Fleming, Ralph M. White, and William E. Vehse, vice-presidents; Charles H. Vehse, treasurer; and Babette Graf, secretary.

Student Affairs

DIRECTOR OF STUDENT AFFAIRS

Student activities and welfare are under the administration of the Director of Student Affairs. His office is on the second floor of the Administration Building and his associate and assistant's offices are on the third floor.

DEAN OF WOMEN

All interests of women students are in the hands of the Dean of Women. Her office and that of her assistant are on the main floor of Elizabeth Moore Hall.

Standards of Student Conduct

A student is expected to show both within and without the University unfailing respect for order, morality, personal honor, and the rights of others. This rule is construed as applicable at all times, in all places, to all students of the University. A student may at any time be removed from the University if his presence is not conducive to the best interests of the University.

The University maintains very stringent standards of honesty in academic work. Both students and faculty are committed to the discouragement of cheating in all forms. Uniform procedures for hearing, investigating, handling, and disposing of cheating cases are established throughout the University (see page 29).

All matters of discipline are under the jurisdiction of the Director of Student Affairs and the Committee on Discipline. No student may be expelled without approval of the President of the University.

Student Marriages

If any student under the age of twenty-one years, who has not been previously married, intends to marry within the school year, he or she must obtain the consent of the parents* or guardian before such marriage shall be solemnized, in accordance with the provisions of Section 8, Chapter 48, revised Code of West Virginia, 1931.

In order to insure obedience with both the letter and the spirit of this statute and the policy of the University such student, no less than one week before said marriage, must show satisfactory evidence to the Director of Student Affiars that consent of the parents or guardian as required by the statute has been obtained.

In the event that such student does not make such showing to the Director of Student Affairs, regardless of where the marriage ceremony is performed, he or she may be suspended, and may only be reinstated upon showing satisfactory reason to the Council of Administration why he or she failed to comply with this regulation.

Where both parties to the marriage are students and one has not complied with this rule, both may be suspended.

Return of Books to Library

Students must present a signed statement from the Librarian that they have returned all books and paid all library fines before withdrawing from the University or before graduation.

Campus Parking Regulations

Students are required to observe all rules and regulations of the University concerning automobile parking. Full information is available in *Notes for New Mountaineers* or from the Information Desk, located in the lobby of the Administration Building.

Student Identification Card

An identification card is issued to each full-time student. This card entitles the owner to admission to certain University athletic events, various activities of student government, Health Service, and Mountainlair. Confiscation will result from misuse. The University reserves the right to refuse reissuance of an identification card.

*Or of the parent living; if the parents be living separate and apart, of the one accorded the custody of such person.

Living Accommodations

The University maintains five residence halls, one for men and four for women. For information as to accommodations and rates, address the Director of Residence Halls.

The following rules are in effect:

Each student who wants a room in one of the halls must file an application with the Department of Residence Halls. Applications will be accepted after September 15 for the academic year beginning the following September. The applications are held on file until the students have been admitted to the University by the Registrar.

No student will be permitted to live in other quarters until after the residence halls are fully occupied. All women students must live either in residence halls, sorority houses, or in houses approved by the Dean of Women.

In assignment of rooms in these buildings all freshmen shall be required to take rooms therein, no freshman being allowed to live outside the residence halls if there is room in them. In enforcing this rule the following exceptions shall be made:

(1) When the parents or legal guardians of students reside in Morgantown or within commuting distance of the University, these rules shall not apply.

(2) When the home of the student is within such distance that it is entirely practicable for him to live in his home and reach the University by car or otherwise for all his classes, these rules shall not apply.

A student who does not claim exemption for the fall semester to live with parents or guardian cannot claim exemption for the second semester unless the parents in the meantime have moved to Morgantown.

(3) When students above the rank of freshman reside in approved sorority or fraternity houses under the supervision of the Director of Student Affairs and the Dean of Women, these rules shall not apply.

(4) When conditions of employment (such as firemen in various buildings and homes, employment on dairy and experimental farms, etc.) require residence on the premises, these rules shall not apply. Students so employed should not request reservations for resident space. All women students must receive approval of the Dean of Women before arranging to work for room and board.

When space is needed for underclass women, no senior sorority woman will be permitted to live in Arnold Hall if there is room for her in her sorority house.

Because of the shortage of residence space, rooms are assigned only to students whose homes are in West Virginia. Assignments are for the entire academic year. Students cannot be released at the end of the first semester to live elsewhere.

More detailed information may be found in the *Residence Halls Bulletin*, a copy of which will be furnished by the Director of Residence Halls.

The Off-Campus Housing Adviser is an assistant to the Director of Student Affairs. His office is located at the University Housing Center, 719 College Avenue, and will provide information regarding private housing in Morgantown and vicinity. All graduate women students and all men students requiring living accommodations in private residences, apartments, or houses may write or call upon the Housing Adviser for assistance. Private housing off-campus is available at reasonable rates within easy walking distance of the campus. Most of these facilities have been approved to meet essential safety, health and other desirable environmental conditions of the student. A few private residences are equipped to board students.

The University operates several hundred furnished and unfurnished apartments for students, faculty, and staff at reasonable rates. For information write to the Apartment Housing Office, 719 College Avenue.

Student Government

University student government provides for three separate departments of government activity: the Student Legislature, the Student Executive Council, and the Student Court.

The Legislature, composed of elected representatives from all colleges and schools, determines policy and exercises control over all student activities proposed by the Executive Council, the administrative body which includes the president and vice-president of the student body, and the president and vice-president of each class. The Court, composed of seven students, handles constitutional revisions and controversial issues of the Legislature and Executive Council.

Student government sponsors many educational and entertaining activities, and coordinates the work of its committee system and of various campus organizations. Besides providing valuable experience in democratic self-government, student government represents the student body with the faculty, the administration, and with off-campus groups.

STUDENT COUNSELING SERVICE

The University provides diagnostic testing and counseling for students with educational, vocational, and personal adjustment problems. These services are provided by clinical psychologists from the faculty and staff of the Department of Psychology.

The Student Counseling Service is a voluntary, confidential resource for students. It is located on the third floor of Oglebay Hall. The service is available from 8:30 A.M. to 5:00 P.M. daily, except Saturdays and Sundays. Saturday hours are 9:00 A.M. to noon.

CULTURAL ACTIVITIES

The University, through the Committee on Convocations and Public Exercises, provides appropriate and desirable programs for students. The convocations form the basis of the cultural program, but there are others sponsored by various divisions of the University and community.

The University Cultural Series present a special program of outstanding cultural events during each academic year and summer session in the area of drama, music, and the dance.

Convocations consist of addresses by distinguished speakers and musical and other entertainment features of special merit.

During the year students have an opportunity to attend their own legitimate theatre in which plays are presented by the Department of Speech. The University Radio Theatre also is an activity of the Department of Speech.

The University Symphony Orchestra concerts, individual recitals, and glee club concerts are sponsored by the School of Music.

Greater West Virginia University Weekend makes a number of cultural activities available to students and their visiting parents. A modern dance recital, music recitals, religious services, and educational scientific exhibits are of the highest value.

In early spring of each year the annual Festival of the Fine and Lively Arts, sponsored by the College of Arts and Sciences and the School of Music, attracts much attention. Features of the Festival have included concerts by off-campus musical organizations; art exhibits; works of the theatre; films; dance presentations; chamber music offerings; recitals by faculty and invited artists; concerts by the University Choir, the University-Community Symphony Orchestra, the University Symphonic Band, and off-campus musical organizations. Other Festival attractions include jewelry exhibits, photography showings, swimming pageants, water color exhibits, and other cultural activities.

SOCIAL ACTIVITIES

Student social life in the University is a carefully planned and supervised part of a student's life on campus. It is guided in such a manner as to offer a wholesome type of pleasure without curbing the institution's main purpose—education of the student.

Social life is under the supervision of the University Social Committee. The committee has supervision of every social function given by the University or by an organization within it, including fraternities, sororities, and other student societies.

The social program is highlighted during the year by Homecoming Weekend, Mountaineer Weekend, Greater West Virginia Weekend, and Graduation Week.

The Homecoming Parade is an annual tradition. The Homecoming Dance, of course, is the climax of the celebration. Mountaineer shenanigans on a special fall weekend, set aside by the students, is the most newly-established annual affair.

PROCEDURAL RULES FOR HANDLING CHEATING CASES

General Statement of Policy

Cheating is condemned at all levels and in all areas of life. Like a crippling malady, it leaves its marks subjectively. Cheating indicates a weakness and inability to meet and face the issues and problems of life. It creates an atmosphere of mistrust, disrespect and insecurity. The effects and influence of cheating will necessarily be reflected in commerce and government and in all of the professions and callings, as well as in the classroom and in the home. Students of the University should act to discourage and eliminate cheating of every kind and character for the moral and mental well-being of themselves and their fellow men. Likewise, it is incumbent on the teaching faculty to remove and eliminate every situation which provides avenues and opportunities for cheating, thereby contributing to the inculation of the principles of honesty, integrity, self-reliance and self-respect of the students. It is expected that University officials will have little occasion to place in operation the established procedures for handling cheating cases. Through these procedures and by means of a continued awareness, on the part of both the faculty and the students, of the intellectually and morally weakening effects of cheating, a healthy strengthening of the moral fiber of the University community may be envisioned and accomplished.

Definition of Cheating

Cheating may be defined as including:

1. Obtaining help from another student during examination.
2. Knowingly giving help to another student during examination.
3. The use of notes, books, or any other unauthorized sources of information during examination.
4. Obtaining, without authorization, an examination or any parts thereof prior to the taking of the examination.
5. Submitting a report, notebook, speech, outline, theme or other problem for credit that has been knowingly obtained or copied in whole or in part from another individual's academic composition, compilation or other product.
6. Submitting or participating in the submission of a report or examination paper falsely represented as being the result of the original efforts of the submitting student.
7. Altering the record of any grade in any gradebook, office or other record.
8. Any other type of misconduct, offense, or manifestation of dishonesty or unfairness in or relating to the academic work.

Procedures for Hearing, Investigating, and Handling Cases

The deans of the several colleges and schools shall have the authority and shall be responsible for the handling of cheating cases arising or occurring within their respective colleges and schools.

Each member of the teaching faculty and all other University employees, including but not limited to assistants, proctors, office personnel, janitors and night watchmen, shall promptly report, via the department chairman or immediate superior, if any, each known case of cheating, as hereinbefore defined, to the dean of the college or school therewith immediately concerned.

Each case of cheating shall be handled with dispatch, and the dean shall promptly report thereon in writing to the President and shall at the same time place a copy of such report in the permanent record of the student concerned and forward another copy thereof to the Director of Student Affairs for his permanent records. In all cheating cases involving women students, an additional copy of such report shall be forwarded to the Dean of Women. The report shall include a brief statement covering the facts and circumstances of the case and the discipline applied or recommended.

In cases wherein cheating occurs in a college or school other than that in which the student is registered, the minimum penalty, as prescribed in the paragraph below, shall be applied by the dean of the college or school in which the cheating occurred. In handling such cases the dean shall follow the procedure in paragraph 3 hereof and then immediately refer the case, by transmittal of a copy of the report thereon as prescribed in paragraph 3 hereof, to the dean of the college or school in which the student involved is registered. The purpose of this copy of the report is for information and for imposition or recommendation of such further discipline or penalty as may be warranted. Upon completion of his review of and action on the case, the dean of the college or school in which the student is registered shall thereupon compose his independent written report on the case and transmit same to the President and otherwise distribute copies thereof as provided in paragraph 3 hereof.

The deans and their respective teaching faculties shall take remedial and preventive steps to remove every opportunity for and situation conducive to cheating. Particular attention shall be given to the maintenance of a high level of proctoring in those colleges, schools and departments wherein proctoring is employed and to security against student access to or knowledge of examination and test materials prior to the time of the intended use thereof for student examination and testing purposes. The deans shall exercise their independent discretion as to methods and means of accomplishing these ends and may employ thereof faculty meetings, written instructions or other effective devices and measures.

Penalties for Cheating

The *minimum* penalty for all cases of cheating shall be dismissal from the course and the establishment of a grade of "Failure" in the course, as of the date of cheating. *Unless in the opinion of the dean there are extenuating circumstances which might indicate the advisability of a lesser penalty.*

For a second or subsequent cheating offense, in addition to failure in the course, suspension or expulsion of the student shall be recommended by the dean for the President's action. The office of the Director of Student Affairs shall maintain its records of reports in cheating cases so as to detect and ascertain promptly and accurately the occurrence of second or subsequent cheating offenses and, upon inquiry by the dean, shall promptly advise whether the student has been guilty of any prior cheating offense or offenses.

Suspension or expulsion of a student guilty of cheating may, in first offense cases, be recommended by the dean to the President if the facts and circumstances of the case so warrant or the rules, regulations or policy of the college or school concerned so require.

In cheating cases involving criminal offenses, such as theft of examination or test materials, alteration of records, breaking or entering buildings, offices, desks, safes or filing cabinets, damage to public property and other like or similar misconduct, the academic penalties and discipline as herein prescribed shall be applied and, in addition thereto, the dean of the college or school concerned shall, with the approval of the President, cause the facts of each case to be presented to the Prosecuting Attorney of Monongalia County, West Virginia, for his further investigation and for prosecution by injunction or otherwise as may be warranted. Upon the issuance of a warrant for or the return of an indictment against a student on account of any such offense, the President shall suspend such student from the University pending final prosecution thereon. If the student be acquitted of the offense, his suspension may be vacated, but if convicted of the offense, he shall be expelled from the University.

A student may appeal from the decision or action of a dean in a cheating case to the President for review and reconsideration and the President may thereupon affirm or reverse, in whole or in part, the decision or action of the dean.

In his action on any cheating case, whether on appeal by a student or on recommendation or reference by a dean, the President may consider the case record before him, may further investigate or cause to be investigated the facts and circumstances of the case, and may act personally thereon and dispose thereof, or he may, in his discretion, refer the case to another appropriate University office, committee or agency for review, investigation, consideration and recommendation prior to his final action thereon and disposition thereof.

It is recommended that, in all phases of cheating cases, care and caution will be observed so as to avoid any accusation or charge of cheating or related impropriety which may be without foundation. A false accusation may have serious implications and result in reflection on or harm to an innocent and unoffending student and discredit to the faculty.

Student Organizations

Eligibility for Activities

To be eligible to represent the University in public appearances, a student must be enrolled in the University and must meet the eligibility requirements of the department or school in which the activity originates. The records of those students whose status is questionable should be checked at the Registrar's Office before participation is permitted. This checking should be done by the department or school in question.

To hold an elective or appointive office in a duly recognized student organization a student must be enrolled in the University for at least 12 semester hours; and if in other than his or her first semester in residence, must have maintained a minimum cumulative average of "C," as reported by the Registrar's Office, at the time of election or appointment. After completion of his or her first semester in the University no person shall be pledged to either a social fraternity or sorority unless he or she has attained a cumulative average of "C" as reported by the Registrar's Office at the time of pledging.

Following is a brief listing of all recognized student organizations. Specific details concerning description and membership requirements can be found in *Notes for New Mountaineers* and where applicable in the *Announcements* of the school or college concerned.

ACADEMIC AND SERVICE HONOR SOCIETIES

Alpha Epsilon Delta (Pre-medical)
Alpha Pi Mu (Industrial Engineering)
Alpha Psi Omega (Dramatics)
Alpha Zeta (Agriculture)
Arnold Air Society (Air Force R.O.T.C.)
Beta Gamma Sigma (Business Adm.)
Chi Epsilon (Civil Engineering)
Chimes (Junior women)
Eta Kappa Nu (Electrical Engineering)
Gamma Sigma Delta (Agriculture)
Helvetia (Sophomore men)
Kappa Delta Pi (Education)
Kappa Tau Alpha (Journalism)
Li-Toon-Awa (Sophomore women)
Mortar Board (Highest women's honorary)
Mountain (Highest men's honorary)
Omicron Nu (Home Economics)
Order of the Coif (Law)
Order of the Grail (Jr. Men's Honorary)
Pershing Rifles (Military)
Phi Beta Kappa (Arts and Sciences)
Phi Delta Kappa (Education men)
Phi Epsilon Phi (Botany)
Phi Lambda Upsilon (Chemistry)
Pi Delta Phi (French)
Pi Tau Sigma (Mechanical Engineering)
Psi Chi (Psychology)
Rho Chi (Pharmaceutics)
Scabbard and Blade (Army R.O.T.C.)
Sigma Delta Pi (Spanish)
Sigma Delta Psi (Men's Sport Honorary)
Sigma Gamma Epsilon (Earth Sciences)
Sigma Gamma Tau (Aeronautical Eng'g.)
Sigma Pi Sigma (Physics)
Sigma Tau Sigma (Tutoring Honorary)
Sigma Xi (Scientific Research)
Sphinx (Senior men)
Spokes (Women's service group)
Tau Beta Pi (Engineering)
Xi Sigma Pi (Forestry)

PROFESSIONAL HONOR SOCIETIES

Alpha Delta Theta (Medical Technology)
Alpha Epsilon Delta (Pre-medical)
Alpha Kappa Psi (Economics)
Alpha Tau Alpha (Agricultural Educ.)
Beta Alpha Psi (Accounting)
Delta Sigma Delta (Dentistry)
Delta Sigma Rho (Forensics)
Forestry Club
Kappa Psi (Pharmacy)
Lambda Kappa Sigma (Pharmacy women)
Mu Phi Epsilon (Music women)
Omega Chi Epsilon (Chemical Eng'g.)
Omicron Kappa Upsilon (Dentistry)
Phi Alpha Delta (Law)
Phi Alpha Theta (History)
Phi Beta Pi (Medicine)

Phi Chi (Medicine)
Phi Delta Phi (Law)
Phi Mu Alpha (Music men)
Phi Upsilon Omicron (Home Economics)
Pi Sigma Alpha (Political Science)
Psi Omega (Dentistry)
Sigma Delta Chi (Journalism men)
Theta Sigma Phi (Journalism women)
Xi Psi Phi (Dentistry)

NATIONAL AND LOCAL STUDENT GROUPS

The Art Society
Advanced Cadet Class
Agriclub
Alpha Phi Omega
American Chemical Society
American Institute of Chemical Engineers
American Institute of Electrical Engineers and Institute of Radio Engineers, joint branch
American Institute of Industrial Engineers
American Institute of Mining, Metallurgical, and Petroleum Engineers
American Marketing Club
American Pharmaceutical Association
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
Associated Women Students
Block and Bridle Club
Campus Ecumenical Council
Cavalettes
Collegiate F.F.A. Chapter
Cosmopolitan Club
Dairy Science Club
Diogenes Club
Dolphin
Fi Batar Cappar
Future Farmers of America (Local Group)
Home Economics Club
Il Circolo Italiano
Institute of Aerospace Sciences
Interfraternity Chaplain's Council
Interfraternity Council
Mathematics Club
Mountaineer Folklore Society
Mountaineer Party
Mountaineer Rifle Club
Music Educators' National Conference
Orchesis
Panhellenic Council
Philosophical Society
Physical Education Majors' Club (women)
Recreation Club
Russian Circle Club
Society for the Advancement of Management
Spokes
Student National Education Association
Student Party
University Bands
University Choir
University Choral Union
University Debate Team
University Four-H Club
University Marketing Club
University Players
University Symphony Orchestra
Varsity Club
Veterans' Club
W.V.U. Amateur Radio Club
W.V.U. Society of Mining Engineers
Young Democrats
Young Republicans
Y.M.C.A.
Y.W.C.A.

SOCIAL ORGANIZATIONS

Fraternities

Alpha Gamma Rho, Alpha Phi Delta, Alpha Sigma Phi, Beta Theta Pi, Delta Tau Delta, Kappa Alpha, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Kappa Psi, Phi Kappa Sigma, Phi Sigma Delta, Phi Sigma Kappa, Pi Kappa Alpha, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Tau Kappa Epsilon, Theta Chi.

Sororities

Alpha Delta Pi, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Gamma Phi Beta, Kappa Delta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Delta.

Fraternity Advisers

Alpha Gamma Rho, Prof. R. A. Ackerman; Alpha Phi Delta, Michael Caruso; Alpha Sigma Phi, Francis P. Fisher; Beta Theta Pi, Dr. E. W. Crooks; Delta Tau

Delta, Dr. John R. Williams; Kappa Alpha, Dr. Donald Hayhurst; Kappa Sigma, Patrick A. Donnally; Lambda Chi Alpha, Prof. John R. Cresswell; Phi Kappa Psi, Harold J. Shamberger; Phi Kappa Sigma, Prof. Ralph M. White; Phi Sigma Delta, Dr. Victor J. Lemke; Phi Sigma Kappa, Arthur L. Morris; Pi Kappa Alpha, Dr. Jesse F. Clovis; Sigma Chi, Dr. John T. Welch; Sigma Nu, Edwin L. Kimble; Sigma Phi Epsilon, Avery F. Gaskins; Tau Kappa Epsilon, Dr. Carl Dennler.

Sorority Supervision

Supervision of all sororities is vested in the Dean of Women's office.

ASSOCIATED WOMEN STUDENTS

All women students are members of Associated Women Students. The purposes of this association are: (1) to regulate all matters pertaining to the student life of its members; (2) to further in every way a spirit of friendliness and unity among the women of the University; (3) to increase their sense of responsibility; and (4) to be a medium for maintaining high scholastic and social standards.

Responsibilty for directing the work of the Association rests with the Executive Council, composed of the following members: a president, two vice-presidents, a secretary, a treasurer, and a representative from each class. The officers are elected annually. To be eligible for membership on the Executive Council, a woman must have no less than a "C" average in all her class work.

In 1921, the Association was admitted to active membership in the intercollegiate Association of Student Government for Women Students.

Religious Foundations and Associations

Various State and National church boards have established foundations at the University for the religious education and nurture of students. The churches of Morgantown extend a warm welcome to students of all faiths. The physical plant and equipment of each church is available for social, educational, and recreational activities of students.

Baptist

The Baptist Student Movement at the University is located in the Student Center of the First Baptist Church, 432 High Street. It is sponsored by the American Baptist Convention, and the local church. The B.S.M. includes the Baptist Student Fellowship and the Married Student Fellowship. Their programs encompass church school classes, worship services, evening fellowships, and many other activities. The responsibility for these programs lie with the students and the pastor to students.

Catholic

Newman Hall, 1481 University Avenue, is the social and religious center established by the West Virginia Diocese of the Roman Catholic Church for students of that and other faiths. Newman Hall is a beautiful building of English collegiate architecture immediately adjacent to the campus. It includes a chapel, dining room, lounge, game room, and library. The Paulist fathers are the resident chaplains.

Christian

The *Disciple Student Foundation* provides a program for Christian Church students attending the University. The Foundation is sponsored by the Department of Religious Education of the United Christian Missionary Society at Indianapolis, Ind., the Christian Churches of West Virginia and the First Christian Church at Morgantown. These three agencies function through a Student Work Advisory Committee. The First Christian Church is the center for Foundation activities and is located at Grand Street and Cobun Avenue.

Episcopal

Trinity Church, at Spruce and Willey streets, is the center for student work sponsored by the Diocese of West Virginia of the Protestant Episcopal Church. This work is under the direction of the rector and the assistant rector. The program includes student worship services and meetings of the Canterbury Club, a chapter of the National Association of Canterbury Clubs, for discussion and fellowship. Canterbury Club meets in Strider Hall, located on the ground floor of Trinity Church.

Greek Orthodox

The *Greek Orthodox Youth of America* conducts student activities at 447 Spruce Street.

Jewish

The Hillel Foundation at the University, 1420 University Avenue, represents the combined efforts of the West Virginia B'nai B'rith Lodges and of the National B'nai B'rith Hillel Foundation to bring the University's students together in religious, cultural, and social activities. Prominent lecturers and speakers are featured at regular intervals by the Foundation for the members of the group and for the general student body.

Lutheran

St. Paul's Lutheran Church is the center of Lutheran student activities sponsored by the Student Service Commission of the National Lutheran Council, the Synod of West Virginia, and St. Paul's Lutheran Church. The work is under the direction of the local pastor. The program includes regular services of the church and activities of the Lutheran Student Association.

Methodist

Wesley Foundation at West Virginia University is housed in Wesley Methodist Church at 503 High Street and provides a worship and activities center for Methodist students in the University. Facilities are provided for worship, religious education, and fellowship. The students plan and execute the program of education, worship, fellowship, community service, settlement house missions, and other activities. Kappa Phi, Methodist women's club, and Sigma Theta Epsilon, Methodist men's fraternity, are sponsored by the Foundation.

Presbyterian

The *Westminster Foundation* of West Virginia represents the cooperative efforts of the Boards of Christian Education and National Missions of the Presbyterian Church, U.S.A., the Synod of West Virginia of the Presbyterian Church, U. S., and the Presbytery of Winchester, to make the Christian religion a vital factor in the experiences of students and in the relationships which these students sustain while in the University; and also, through guided Christian activities in the mine-camp communities surrounding Morgantown, to train among educated men and women future Christian statesmen. The work is under the direction of the student pastor.

United Brethren

The Student Youth Fellowship of the *Evangelical United Brethren Church* conducts student activities at the Church on Burroughs Street in The Flatts. The work is under the direction of the local pastor.

Other Churches

Other churches, while not having special buildings or workers for University students, make definite contributions in ministering to the religious and social needs

of students who belong to their particular faiths. College students are welcome in all the churches regardless of their church affiliations. A complete list of churches and services will be found in the bulletin *Notes for New Mountaineers.*

Y.M.C.A. and Y.W.C.A.

The *Young Men's Christian Association* of West Virginia University is a nonsectarian fellowship of students and faculty united in the desire to encourage personal and social development in the light of religious principles. The *Young Women's Christian Association* is a nonsectarian fellowship of women of the University organized for the purpose of promoting and directing widely varied activities through a religious motive. Both associations are affiliated with their national and international bodies and with the World Student Christian Federation.

Student officers, student cabinets, boards composed of students, faculty, and townspeople, and an executive secretary direct the activities of the Y.W.C.A. The various committees, interest groups, and commissions provide not only their immediate ends, but also opportunity for fellowship and leadership training.

Scholarships, Prizes, Awards, Assistantships, Fellowships, and Loan Funds

Many individuals and organizations who are friends and benefactors of West Virginia University and its students have established scholarships for deserving students. Additional information concerning these scholarships may be obtained from the Scholarship Coordinator, 303 Administration Building.

Freshman Scholarships

For Students in the College of Agriculture, Forestry, and Home Economics

Rachel Colwell Scholarship. This tuition scholarship was established and is supported by Phi Upsilon Omicron, professional home economics organization. Alumnae and the active chapter cooperate in providing a tuition scholarship to an entering freshman women who proposes to major in home economics. Selection is on the candidate's high school record, including experience in such organizations as 4-H and F.H.A. It is in the amount of $100.

Continental Can Company, Inc., Forestry Scholarship. This scholarship, consisting of $1,000 for each of four years, is awarded to a freshman man enrolled in Forestry. The recipient must be a resident of a county in Virginia in which the Continental Can Company owns land. Selection of the recipient is made by the Company.

Danforth Foundation Agricultural Leadership Training Scholarship. A $50 scholarship at the American Youth Foundation Leadership Training Camp. Stony Creek, Michigan. This award is made to an outstanding agricultural freshman. The award is made jointly by the Danforth Foundation and Ralston Purina Company, St. Louis. Selection of recipient is made by the Student Aid and Grants Committee of the College of Agriculture, Forestry, and Home Economics.

Gilbert Lumber Company Scholarship in Forestry. Established in the fall of 1956, this scholarship is for the study of forestry as preparation for work with the lumber industry, and carries an annual stipend of $900 for the school year subject to renewal for a total of four years on the basis of a satisfactory school record for the preceding years, and continued attendance by the recipient. Eligibility is restricted to residents of Mingo, Wayne, Lincoln, Logan, Boone, McDowell, Wyoming, Raleigh, Fayette, Mercer, and Summers counties. Applicants are required to be in the upper 10 per cent of their high school graduating classes, and must accept employment in the lumber industry during two summer vacations while studying at the University.

Harrison County Farm Bureau Agricultural Scholarship. Established in the fall of 1959. To be eligible as a recipient, the applicant must be a male student from Harrison County, who has completed high school with a creditable record and who has the additional qualifications of high character, abiding interest in agriculture, and financial need. Previous membership in 4-H and F.F.A., while desirable, are not required, nor is a farm background. This scholarship has an annual stipend of $100.

Kroger Company Scholarships. The Kroger Company will give two scholarships of $250 each to students in agriculture or forestry. Awards are made on the basis of scholarship, and leadership in school, church, F.F.A., F.H.A., 4-H, and other youth activities.

Kroger Company Scholarships. The Kroger Company will give two scholarships of $250 each to students in home economics. Awards will be made on the basis of scholarship, and leadership in school, church, F.F.A., F.H.A., 4-H, and other youth activities.

Sears Roebuck Foundation Agricultural Scholarships. A grant of $2,250 from the Sears Roebuck Foundation of Chicago makes possible the awarding of 10 scholarships each year to deserving men enrolling as freshmen in agriculture or forestry, and to one sophomore in these fields. The freshman grants are $200 each; the sophomore grant is $250.

Sears Roebuck Home Economics Scholarships. A grant of $600 to the Division of Home Economics from the Sears Roebuck Foundation of Chicago makes possible the awarding of annual scholarships to three deserving women enrolling as freshmen in home economics. Individual scholarships amount to $200 per year.

Southern States Cooperative Scholarship. Established in 1957, this award is made annually to a freshman in agriculture or forestry, the son of a Southern States Cooperative member, a resident of West Virginia, who has two or more years' experience in 4-H or F.F.A. work. The grant is in the amount of $1,200, payable at the rate of $300 yearly.

Standard Oil Company of New Jersey Scholarship. In 1947 the Standard Oil Company of New Jersey provided a four-year scholarship of $200 per year to a man in 4-H Club work in West Virginia. Selection is on the basis of need and ability.

West Virginia Dairy Technology Society Scholarship. The West Virginia Dairy Technology Society has established a scholarship of $400 to be awarded to an entering freshman who intends to major in dairy manufacturing. The recipient is selected by the Committee on Student Aid and Grants of the College of Agriculture, Forestry, and Home Economics on the basis of high school achievement, aptitude, and need.

West Virginia Garden Club's Scholarship in Forestry. Established in 1959 by fifteen garden clubs throughout West Virginia, this scholarship is composed of $200 to be used by a student or students attending the 1963 Forestry Summer Camp and is to be presented by Dr. W. C. Percival, Director, Division of Forestry.

West Virginia Home Demonstration Council Scholarships. These scholarships of $200 are available to three freshman women in the Division of Home Economics. A 2.0 average must be maintained for the second semester in order to retain the scholarship. It is hoped that a good proportion of the recipients will eventually give service to West Virginia by becoming 4-H club agents or home demonstration agents.

For Students in the College of Arts and Sciences

Alpha Chapter of Phi Epsilon Phi Botany Scholarship. This scholarship was established in 1961 by the Alpha Chapter of Phi Epsilon Phi, honorary botany fraternity, to be awarded to a high school senior who has shown interest in making a study of botany. This scholarship will pay University fees for one semester. Each high school principal may nominate one student from his school. Nominations must be received by the fraternity by April 6. The award recipient will be announced at the University's annual Wild Flower Day program.

Columbia Southern Chemical Corporation Scholarship. This award is in the amount of $4,000. It was established for graduates of Magnolia High School (New Martinsville) or for employees of the Columbia Southern Chemical Corporation plant

who graduated from any high school. The recipient must be a candidate for work in chemistry, chemical engineering, mechanical engineering, civil engineering, or electrical engineering. The recipient will be selected by the corporation.

Science Talent Search Scholarship. The Board of Governors of the University and the West Virginia Academy of Science in 1949 established this scholarship which entitles a high school senior to the remission of all fees except those payable to State special funds and those chargeable to special services, as well as a cash award of an amount not less than the total remitted by the University. The recipient is selected by the Academy of Science in accordance with its rules.

Sigma Pi Sigma Scholarship in Physics. Established in 1956 by the local chapter of Sigma Pi Sigma, national physics honorary, this scholarship is awarded annually to a West Virginia high school senior chosen on the basis of tests and academic record, and on the recommendation of his high school principal and science teacher. In order to obtain the scholarship, which pays $150 per year, the recipient must enroll in the University with the intention of majoring in physics.

For Students in the School of Dentistry

General Daniel Morgan Scholarship. In the fall of 1959, on behalf of the Veterans of Foreign Wars of the United States, General Daniel Morgan Post No. 548, Morgantown, established a scholarship for an entering freshman. This scholarship will be given to a resident of Monongalia County who is a student in either the School of Dentistry or the School of Medicine. It has an annual stipend of $400. The student will be selected by the V.F.W. Scholarship Committee on the basis of eligibility and need. Dr. Donald E. Hayhurst, political science, is chairman of the committee.

For Students in the College of Education

Board of Governors Scholarships in Education. In 1954 the Board of Governors established five annual scholarships in education. Each includes four academic years and entitles the recipient to the remission of all fees except those payable to State special funds and those chargeable to special services. Scholarships are awarded to graduating high school seniors who have a desire to become good public school teachers on the basis of scholastic ability and attainment, qualities of good citizenship, evidence of leadership and moral force, and extracurricular activities. Scholarship holders will register during their first two years in the pre-Education curriculum of the College of Arts and Sciences.

For Students in the College of Engineering

Armco Foundation Scholarship in Civil Engineering. This award of $650 yearly will be continued for four years provided the recipient maintains satisfactory standards.

Associated General Contractors of West Virginia Scholarship. Established in 1956, this scholarship has a stipend of $300 for a freshman in the College of Engineering. Scholars are chosen from applicants on the basis of scholarship, with an aptitude for college and engineering study, and interest in engineering and construction.

Columbia Southern Chemical Corporation Scholarship. This award is in the amount of $4,000. It was established for graduates of Magnolia High School (New Martinsville) or for employees of the Columbia Southern Chemical Corporation plant who graduated from any high school. The recipient must be a candidate for work in chemistry, chemical engineering, mechanical engineering, civil engineering, or electrical engineering. The recipient will be selected by the corporation.

The Dow Chemical Company Scholarship. Established in 1963. In recognition of the quality of the Department of Chemical Engineering, the Dow Chemical Company has established a four-year scholarship in chemical engineering at $500 per year for a total of $2,000, with summer employment following the junior or

senior year at the option of the recipient. This scholarship will be awarded also for the 1964-65 academic year. Selection is made by the Department of Chemical Engineering.

International Nickel Company Scholarship. Established in 1956, this award is for a high school graduate interested in engineering (with a preference for the mining, geological, or metallurgical fields). It is for four years, and consists of tuition, fees, and a cash sum of $300 annually for books and a portion of the living expenses.

Pocahontas Fuel Company, Incorporated, Scholarships. In 1956 the Pocahontas Fuel Company, Incorporated, established two undergraduate scholarships, one that started in 1956 and the other that began in 1959. The annual amount of each—$700 for West Virginia students or $1,000 for out-of-state students—is renewable from year to year on the basis of satisfactory scholastic and personal records. These scholarships are for the purpose of studying coal engineering in the College of Engineering.

Union Carbide Engineering Scholarship. This scholarship is to be awarded to an entering freshman. It is for four years at $500 per year. Preference will be given to students entering the mechanical, chemical, or metallurgical engineering field.

For Students in the School of Journalism

All scholarships in the School of Journalism are given on the basis of ability, scholastic achievement, promise for a succesful career in one of the many fields of communications media, and need of financial assistance.

Lewis Baker Scholarships. Two scholarships of $100 each were established in 1945 by the late Mrs. Guy Despard Goff in memory of her father, Lewis Baker (1832-99), who founded the Wheeling Register in 1863. Between 1955 and 1957 these two scholarships were maintained jointly by the late Mrs. Ruth B. Thomas, also a daughter of Lewis Baker, and her son, L. N. Thomas. Following the death of Mrs. Thomas, the two scholarships have been maintained by Mr. Thomas, president of the Carbon Fuel Company, Charleston.

Board of Governors Scholarships in Journalism. In 1961 the Board of Governors established three annual scholarships in journalism. Each includes four academic years and entitles the recipient to the remission of all fees except those payable to State special funds and those chargeable to special services. Recipients are selected according to results of a high school writing contest conducted at the University in the spring. All West Virginia high school seniors who give promise of becoming eligible for regular enrollment in the School of Journalism are eligible to participate in the contest.

Charleston Daily Mail-Gazette Scholarships. Two Daily Mail scholarships of $100 each were established in 1945 by its editor, the late Walter E. Clark, and its publisher, Fred M. Staunton. From 1945 to 1957 the Mail provided either one or two scholarships each year. In 1958 the scholarships were given by the Newspaper Agency Corporation as agent for both the Charleston Daily Mail and Charleston Gazette. Awards of $100 each will be granted to two students receiving these scholarships.

Morgantown Typographical Union Scholarship. This scholarship is in the amount of $250 yearly and was established by the Morgantown Typographical Union in 1961. First preference will be given to applicants who may be relatives of members of the sponsoring local union; second preference, to relatives of members of other I.T.U. locals; and third preference, to residents of the State. The usual factors of need and academic ability also will be given their customary weight.

Ogden Scholarships. In 1945 the News Publishing Company, Wheeling, established two $200 scholarships in memory of the late H. C. Ogden, West Virginia publisher.

West Virginia Broadcasters Association Scholarship. Established in 1962 by the West Virginia Broadcasters Association, this scholarship holds an annual stipend of $100. It can be awarded to a different student each fall to supplement the first year of the Board of Governors' Scholarship for broadcast journalism, or it can be

awarded to one student for four years. This is decided by the Scholarship Committee of the School of Journalism.

For Students in the School of Medicine

General Daniel Morgan Scholarship. In the fall of 1959, on behalf of the Veterans of Foreign Wars of the United States, the General Daniel Morgan Post No. 548, Morgantown, established a scholarship for an entering freshman. The scholarship will be given to a resident of Monongalia County, who is a student in either the School of Medicine or the School of Dentistry. It has an annual stipend of $400. The student will be selected by the V.F.W. Scholarship Committee on the basis of eligibility and need. Dr. Donald E. Hayhurst, political science, is the chairman of the committee.

Scholarship Fund in Honor of Dr. Thomas L. Harris. Established by the family of Anna M. Broida of Parkersburg, this annual scholarship of $400 will be awarded each year to a worthy student in the School of Medicine. A preference will be given to a student who is specializing in surgery. This scholarship may be held for more than one year depending upon the committee's decision.

The West Virginia Medical Association Scholarship in Medicine. Established by the West Virginia State Medical Association in 1958. The recipient receives a stipend of $1,000 a year for four years of medical training. Recipients are selected by the Committee of the Student Medical Association on recommendation by the Committee on Admissions of the School of Medicine. The recipient must agree to practice medicine in a rural West Virginia community for four years after his graduation with an M.D. degree.

For Students in the School of Mines

Carbon Fuel Foundation, Inc. Scholarship. A scholarship for the study of Mining Engineering offered by the Carbon Fuel Foundation, Inc. This scholarship carries an annual stipend of $600 for an outstanding high school graduate, and is subject to renewal for a total of four years on the basis of satisfactory school record for the preceding year and continued attendance by the recipient. The scholar must be a resident of West Virginia, and shall intend to accept employment in the coal mining industry following completion of the prescribed course in mining engineering.

Coal Division, American Institute of Mining, Metallurgical, and Petroleum Engineers Scholarship. This scholarship was established for outstanding students in the School of Mines. This scholarship is valued at $400 per year, and may be awarded for a period of four years. Awards are made by the Scholarship Committee of the American Institute of Mining, Metallurgical, and Petroleum Engineers. Inquiries should be addressed to the Dean of the School of Mines.

Frank Ellis Christopher Coal Mining Engineering Scholarship. Established in January 1961, by Mrs. Virginia Christopher Farland in honor of her father, Frank Ellis Christopher. Preference shall be given to male resident applicants for the study of mining engineering. It shall be awarded on the basis of ability, performance, character, and need. The annual stipend is $800.

The Johnstown Coal and Coke Company Scholarship. The Johnstown Coal and Coke Company, of Johnstown, Pennsylvania, offers an annual freshman scholarship in mining engineering for which graduates from high schools in the vicinity of the company's West Virginia and Pennsylvania operations are eligible to compete. The scholarship provides payment of $750 per year, renewable annually for four years on the basis of satisfactory academic performance. Awards are made by the sponsoring company, and the participating high schools in West Virginia are Cowen, Crichton, Nicholas County, Richwood, and Webster Springs.

North American Coal Corporation Scholarship. This grant-in-aid program was established by the Cleveland firm of the same name, and is available to freshmen enrolling in the School of Mines. There is no fixed number of awards, and recipients are selected by the corporation. Grants range up to $900 yearly, and are renewable from year to year on a satisfactory performance basis.

Oglebay-Norton Coal Company Scholarships. In September 1956, the Truax Traer Coal Company established a four-year scholarship program in mining engineering which is being continued by the Oglebay-Norton Company. The program provides two freshman scholarships each year. They carry an annual payment of $600 plus summer employment and are renewable annually for four years on the basis of satisfactory academic records. Contact the Dean of the School of Mines for further information.

Pocahontas Fuel Company, Incorporated, Scholarships. In September, 1956, the Pocahontas Fuel Company, Incorporated, established two undegraduate scholarships, one that began in September, 1956, and the other that began in September, 1958. The scholarship carries an annual stipend of $700 for West Virgina residents and $1,000 for out-of-state students and is awarded to an outstanding high school graduate who is a citizen of the United States, subject to renewal for a total of four years on the basis of satisfactory scholastic and personal record. The recipient should have a basic interest in coal mining and the course of study should be applicable to that industry.

The Semet-Solvay Scholarships. The Semet-Solvay Division, Allied Chemical Corporation, Bluefield, West Virginia, established in March, 1952, the Semet-Solvay Scholarship in Mining Engineering. This scholarship is awarded to an outstanding high school graduate who is a resident of West Virginia and who will pursue a course in coal mining engineering and will accept employment in the coal mining industry upon graduation. This scholarship pays $600 per year, and is renewable from year to year upon the basis of satisfactory academic work during the previous year. Inquiries should be sent to the Dean of the School of Mines.

For Students in the School of Music

Board of Governors Scholarships in Music. Ten Board of Governors scholarships in music are available each year for entering freshmen. These scholarships are open to performers on any band or orchestral instrument, as well as to organists, pianists, singers, composers, and theorists. The recipient is entitled to remission of all fees except those payable to State special funds and those chargeable to special services.

The winner of each scholarship must be a graduate of an accredited high school, and will enroll in the School of Music in the fall following the awarding of the scholarship, as a candidate for a degree in music.

Each scholarship will include four academic years, provided that the recipient maintains a scholarship record deemed by the Scholarship Committee of the School of Music to be worthy of continuance of the scholarship.

Auditions are in Morgantown on announced dates.

Winners are selected on the basis of musical ability, scholastic record, and personality. For further information address the Dean of the School of Music.

The Woman's Music Club of Morgantown Scholarship. The Woman's Music Club of Morgantown has established an annual scholarship for a qualified music student from West Virginia with preference, when possible, being given to a resident of Monongalia County. The scholarship has a value of $115 per semester.

For Students in the School of Physical and Health Education, Recreation, and Safety

Grace M. Griffin Scholarship. The Grace M. Griffin Scholarship provides $240 (tuition) for a freshman woman student majoring in physical education. The recipient will be selected by the faculty of the Department of Physical Education for Women.

Recreation Society Scholarship. The West Virginia Recreation Society has established a scholarship for freshmen. Inquiries regarding this scholarship should be directed to the Recreation Department, School of Physical and Health Education, Recreation, and Safety, West Virginia University, or to the Coordinator of Scholarships, 303 Administration Building, West Virginia University.

Ira Errett Rodgers Scholarship. Established in 1963. This scholarship will provide $240 annually for a freshman majoring in physical education, who will be selected by the faculty of the Department of Physical Education for Men.

For Students in Any College or School of the University

Victor E. Albright Scholarship. This scholarship is awarded to a man or woman of good character, born and reared in Preston County and graduated from a Preston County high school in the year in which the scholarship is given.

Anonymous Scholarships. In 1956 an anonymous bequest was established for a scholarship fund to be used by worthy West Virginia students. Scholarships will be awarded from time to time to prospective and/or enrolled students on the basis of high school record and character. Scholarships will be for any chosen field of study and awarded from year to year, and renewed only when scholars have shown satisfactory progress. The single exception to these qualifications is that descendants of the testator shall be given first consideration regardless of his or her place of residence. The number benefiting from this grant will vary to as many as six or more.

Claude Worthington Benedum Scholarships. These scholarships will be awarded to worthy West Virginia high school graduates, selected on the basis of a statewide competitive examination, need, and other qualifications. The average amount is $250 per year, although this may vary according to need.

Board of Governors Achievement Scholarship. In 1945 the Board of Governors authorized the establishment of 25 scholarships to be awarded annually to high school graduates. The scholarships entitle recipients to the remission of all fees except those payable to State special funds and those chargeable to special services.

D. C. Alumni Chapter Scholarship Fund. Established in 1962 to provide an annual $500 award to the son or daughter of an alumnus or alumna living in the Washington metropolitan area. The award shall be made on the basis of citizenship, leadership, scholarship, and need. It shall be awarded on a one-year basis, with possible renewal for an additional year or years. Nominations will be solicited from members of the D. C. Chapter, other University alumni, high school principals, and/or other interested persons.

Father Flynn Memorial Scholarship. This scholarship is awarded to an outstanding student of the graduating class of St. Francis High School, Morgantown, in memory of Father Peter Flynn, 50 years a Catholic priest and for many years a leading Morgantown citizen. It includes tuition and fees, and will be awarded by the Principal of St. Francis High School.

General Motors Scholarships. The General Motors Corporation in 1955 established a program of merit scholarships in the University. The first two were awarded to outstanding West Virginia high school graduates in the fall of 1955. They are granted for four years, so that by the fall of 1958 eight were in operation. Winners are selected on the basis of high scholarship, character, and potential for college study.

Harrison County Alumni Chapter Scholarship. This scholarship, established in 1950, provides tuition fees for an outstanding Harrison County high school graduate. Selection is made by the chapter.

Helvetia Scholarship. In 1956, Helvetia, sophomore men's honorary, established an annual award of $100 to be applied to tuition for a recipient chosen from the "Ten Top Freshmen" on the basis of financial need.

Leyenberger Scholarship Fund. This scholarship was established in 1956 in the memory of a Wheeling Presbyterian minister and his wife. The invested earnings of the original gift of $1,000 (established in the West Virginia University Foundation) are set aside for an annual scholarship grant to a worthy and outstanding student enrolled in the University. The exact value of the grant will vary, and the stipend is awarded on a year-to-year basis.

Loyalty Permanent Endowment Fund of the W.V.U. Alumni Association. This fund, an irrevocable trust with earnings pledged to University purposes, including scholarships, was established by the Alumni Association in 1937. Its principal is derived from contributions by alumni and other friends of the University; and it is administered by a self-perpetuating trust committee composed of three alumni,

with the Kanawha Valley Bank of Charleston serving as trustee. During each academic year, this fund supports several University scholarships, all outright gifts of cash to deserving students with no obligation to repay other than a moral one at such time as the receipient feels he is financially able to contribute. An average of about eight students are aided by the program yearly.

Morgantown Woman's Club Freshman Scholarship. This scholarship was established in 1961 for the aid of a graduating senior from a Monongalia County high school to help with tuition and fees expenses for one year. The student will be selected from among all Monongalia County high schools each Spring by the Morgantown Woman's Club.

Olin Mathieson Employees Scholarship. The employees of Olin Mathieson Chemical Corporation (Morgantown Plant) have established a scholarship fund in West Virginia University for the purpose of giving aid and encouragement to children and/or grandchildren of former employees of the Corporation's Morgantown Operation wherever they may now reside, to secure college training in any chosen field of study. The value of this scholarship is $200, and the recipient may continue to receive such grants from year to year for four years if academic and character standards of the University are met. (It is planned to expand this to a double scholarship, providing equal amounts for each of two individuals). The recipient will be chosen by the University, and selection of the applicant will be made on the basis of: (1) ability to do college work, (2) character and personality, and (3) need for financial assistance to attend college. Candidates from any undergraduate class rank may be considered. In case no candidates are available from families of employees for a period of three consecutive years, the University is free to select other worthy recipients who may qualify under these conditions.

John Barton Payne Scholarships. A bequest from the late John Barton Payne, Taylor County native and former president of the American Red Cross (who lived in Kingwood and practiced law in Preston County), gave the University a sum of $12,000, income from which is to be used to aid two young men—one a native of Taylor County and the other a native of Preston County—to attend the University. Financial needs and scholastic merit are prime considerations in selecting recipients for this four-year scholarship.

The Deem Rahall Memorial Scholarship. The Rahall family of Beckley established in 1951 a freshman scholarship in the University in memory of Deem Rahall. The scholarship is for an outstanding and worthy graduating senior in Woodrow Wilson High School who desires to attend the University. The annual stipend, awarded for the freshman year only, amounts to $250.

Myrtle Mae Sloan Scholarship. This scholarship was established in 1955 by Miss Viva O. Sloan of Morgantown in memory of her sister. The invested earnings of the original gift of $5,000 (established in the West Virginia University Foundation) are set aside for an annual scholarship grant to a worthy and outstanding student. The exact value will vary, and the stipend is awarded on a year-to-year basis.

Speech Scholarships. Eight speech scholarships are awarded annually to West Virginia high school seniors who participate in the State finals of the West Virginia Interscholastic Forensic League and the State High School Drama Festival. These scholarships are good and usable in any college, school, or division of the University, although the recipient is required to participate each semester in speech activities or enroll in speech classes. A board of judges composed of staff members of the Department of Speech selects the eight outstanding seniors participating in the tournament as recipients of these scholarships, which carry remission of all fees, except those payable to the State special funds and those chargeable to special services, and are good for four years. For information regarding participation in the annual tournament, write to the Department of Speech, early in the scholastic year.

Spencer Manufacturing Company Scholarship. This scholarship was established in 1959 by the Spencer Manufacturing Company. The company will pay $100 to the Roane County W.V.U. Alumni Association, for a scholarship to be awarded to a graduate or graduates of a Roane County high school or to an applicant whose legal residence has been in Roane County for at least five years prior to the date of application. The applicant must have been in the upper 15 per cent of his class scholastically, his school citizenship must have been exemplary, he

must have participated in extracurricular school activities, and he must show definite need of financial assistance. Interested seniors should contact their high school principals before June 1 of each year.

George E. Stifel Scholarship. Several years ago there was established in Wheeling a trust fund known as the George E. Stifel Scholarship Fund, the object of which is to help deserving graduates of the public schools of Wheeling to obtain college educations. As many as four University students have received aid from this fund simultaneously.

Wood County 4-H Scholarships Fund. This fund was established in trust by Mrs. Minnie E. Barnett and is to be used for tuition and fee scholarship benefits for first- or second-year students in the University or a Branch College of the University. Recipients should be Wood County residents who are or have been affiliated with the Wood County 4-H Program. A 2.3 or better average is required at all times. Students wishing to apply should contact the Wood County Agricultural Agent, who is the temporary chairman of the selection committee for this scholarship. This fund will become effective in the 1963-64 academic year.

For Foreign Students

R. A. Farland Scholarship for Latin American Students. This scholarship was established in 1960 by Joseph Farland, Morgantown, in memory of his father—Richard Ashville Farland. The recipient, a Latin American student, may hold the grant for more than one year, so long as he or she lives up to normal academic and conduct standards of the University. The annual stipend is $800.

Parkersburg Branch Scholarships

The following scholarships are available to residents of Wood or contiguous counties of West Virginia and Ohio, and are to be administered by the University Scholarship Coordinator in consultation with the Director of the Parkersburg Branch of West Virginia University.

Lewis Batten Memorial Scholarship. This scholarship was established in 1962 by Wood County Bank and is for a full-time freshman student. It holds an annual stipend of $750. The prime consideration for this scholarship is demonstrated financial need. Other factors that will be considered are previous academic performance, leadership potential, potential promise as a scholar and development as an individual.

William M. Parker, Jr. Memorial Scholarship. This scholarship was established in 1962 by Wood County Bank and is to be given to a full-time student who has completed at least fifteen hours of work. It holds an annual stipend of $750. The prime consideration for this scholarship is demonstrated financial need. Other factors that will be considered are previous academic performance, leadership potential, potential promise as a scholar, and development as an individual.

Wood County Bank Scholarship. Established in 1962 by Wood County Bank. There will be two scholarships granted annually, each holding a stipend of $250 to be awarded to full or part-time students, one a freshman and one a second-year student. In awarding these scholarships, more emphasis will be given to previous academic performance than financial need. Other factors being considered are leadership potential, potential promise as a scholar, and development as an individual.

Wood County 4-H Scholarships Fund. For details concerning this fund, see above.

Upperclass Scholarships

For Students in the College of Agriculture, Forestry, and Home Economics

Andrew Delmar Hopkins Scholarship in Entomology. This scholarship, established in 1954, is in memory of an internationally known entomologist, for many years director of the West Virginia University Agricultural Experiment Station. It is for $200 per year and is awarded to a worthy senior or graduate student with an interest in entomology, who has demonstrated originality and research ability.

KDKA Agricultural Scholarship. This scholarship is in the amount of $100 yearly, and is made to a junior or senior in agriculture to recognize outstanding leadership, to encourage the use of radio in disseminating agricultural information, and to help train students in broadcasting techniques. It is sponsored by Radio Station KDKA, Pittsburgh.

Ralston Purina Company Scholarship. The Ralston Purina Company of St. Louis established in 1955 an annual scholarship for an outstanding student in agriculture. The stipend amounts to $500 a year.

Sears Roebuck Foundation Agricultural Scholarships. A grant of $2,250 from the Sears Roebuck Foundation of Chicago makes possible the awarding of 10 scholarships each year to deserving men enrolling as freshmen in agriculture or forestry, and to one sophomore in these fields. The freshmen grants are $200 each; the sophomore grant is $250.

West Virginia Dairy Products Association Scholarships. This association offers three $250 scholarships each year. Applicants must be sophomores majoring in dairy foods.

West Virginia Garden Clubs' Scholarship in Forestry. This is an award established in 1959 by 15 garden clubs in West Virginia. It is in the amount of $200, and is to be used by a student (or students) attending the Summer Forestry Camp. The funds will be granted at the direction of the Director of the Division of Forestry.

For Students in the College of Arts and Sciences

American Viscose Corporation Scholarship. The American Viscose Corporation of Marcus Hook, Pa., established in 1953 an undergraduate scholarship for a junior or senior majoring in chemistry or chemical engineering. The annual value of the scholarship is $500, and the scholarship alternates between students in the College of Arts and Sciences and the College of Engineering.

Board of Governors Scholarships in Social Work. In 1961 the Board of Governors reduced the number of scholarships in the field of social work to two. These are for undergraduate students with preferences for West Virginia residents. Each entitles the recipient to the remission of all fees except those payable to State special funds and those chargeable to special services.

Edna Nestor Condry Scholarship in Art. This scholarship was established in July, 1961 in memory of Mrs. Edna Nestor Condry by her husband, Dr. R. J. Condry, who is now a member of the clinical staff of the School of Medicine. The award holds an annual stipend of $250. The recipient will be chosen by University scholarship officials in consultation with the Chairman of the Department of Art. Preference is to be given residents of West Virginia with need and talent.

R. M. Davis Scholarship in Political Science. R. M. Davis, late Morgantown coal operator, gave the University the sum of $5,000 to establish a scholarship in the Department of Political Science. The scholarship, with an average value annually of between $300 and $500, is granted to an undergaduate or graduate student whose specialty is international relations. Scholastic standing and qualities of leadership will be given primary consideration.

Charles B. Jolliffe Scholarship. The Radio Corporation of America in 1952 established the Charles B. Jolliffe Scholarship to honor the director of R.C.A. who is an alumnus of the University. The scholarship, valued at $800 per year, is awarded to an outstanding undergraduate student who has elected to major in chemistry, mathematics, or physics.

The John A. Moore Scholarship Fund in Memory of John Craig Moore. This scholarship fund was established in 1962 by the will of John A. Moore. The number and amounts of scholarships granted depend on income from invested funds. Scholarships will be awarded to male students in chemistry, who are residents of West Virginia, of good character and sound health, and those who would not otherwise be able to receive a University education. Students are to be selected on their merits, those having special promise of ultimate accomplishment to be given preference.

Morgantown Community Players' Scholarships. These scholarships (generally four in number) were established in 1955. They are for University students participating in Department of Speech activities and/or courses with the following selection

priorities: (1) a citizen of the Morgantown area; (2) a citizen of the State of West Virginia; (3) a nonresident student. These students shall be chosen on the basis of talent, industry, and academic achievement during their freshmen and sophomore years. Their names are then approved by the Morgantown Community Players. The scholarships are paid during the recipients' junior and senior years in the sum of $100 during each of the two years.

The Morgantown Service League Scholarship. This scholarship provides $200 a year for a full-time student in the Department of Social Work. The recipient must be a resident of West Virginia, and must be approved by the Chairman of the Department of Social Work.

The West Virginia Federation of Women's Clubs Scholarship in Social Work. This scholarship provides $150 a year and is awarded to a full-time student in the Department of Social Work. The recipient, selected by the Chairman of the Department, must be a resident of West Virginia.

For Students in the College of Commerce

West Virginia Consumers Finance Association Scholarship. This association established in 1946 an annual scholarship of $150. This scholarship is for the aid of an outstanding and needy University student who is a resident of West Virginia. In 1953 the association specifically designated this scholarship for the use of an outstanding student in the College of Commerce. Recipients are chosen on the basis of character, academic achievement, and general campus activities.

The West Virginia Banking Association Award. Established in 1961 by the West Virginia Banking Association, this scholarship is awarded to a University student majoring in economics. The award holds a stipend of $700 per year.

For Students in the College of Engineering

American Viscose Corporation Scholarship. The American Viscose Corporation of Marcus Hook, Pa., in 1953 established an undergraduate scholarship for a junior or senior majoring in chemical engineering or chemistry. The annual value of the scholarship is $500, and it alternates between students in the College of Engineering and the College of Arts and Sciences.

Machinery, Inc., Engineering Scholarship. This scholarship is to be awarded to a worthy senior student of good moral character, a resident of West Virginia, who expects to pursue the field of engineering upon graduation. The amount is $400.

The Friends of The Pennsylvania Electric Coil Corporation Scholarship. This scholarship was established in 1959 by the Pennsylvania Electric Coil Corporation. It is to be awarded to a junior or senior student in engineering with a preference being given to the electrical field. Selection is made on the basis of need, potential achievement, and character. The recipient shall be willing to provide a picture and some facts concerning his background and ambitions. This scholarship is for one year and may or may not be renewed by the donor from year to year.

West Virginia Society of Professional Engineers Scholarship. This scholarship is sponsored by the Woman's Auxiliary of the Charleston Chapter of the West Virginia Society of Professional Engineers, Charleston. The recipient must be an upperclass woman in the College of Engineering. She must have a financial need and she must preferably be from Kanawha County, but in any event, a resident of West Virginia. She must have above a 2.000 grade-point average. This scholarship has a cash value of $100 per year.

For Students in the School of Journalism

All scholarships in the School of Journalism are given on the basis of ability, scholastic achievement, and promise for a successful career in one of the many fields of communications media, and need of financial assistance.

Charleston Press Club Scholarships. The Charleston Press Club in 1951 established an annual grant of $200 for sophomores, juniors, or seniors in journalism. This amount is generally awarded in the amount of $100 each to two recipients.

Journaliers' Tuition Scholarship. This scholarship, consisting of $115, was begun in 1958 and is awarded the first semester of each year to a worthy and deserving upperclassman in journalism. The sponsor is Journaliers', men's journalism honorary.

For Students in the School of Medicine

Claude Worthington Benedum Foundation Medical Scholarship. A fund of $1,200 yearly has been granted by the foundation for the aid of medical students with satisfactory academic records who need financial help to complete a given year's course of study. There is no set number.

Joseph Collins Foundation Scholarships. Established in 1951 under a bequest of the late Dr. Collins, physician and pioneer neurologist, these scholarships provide financial support in varying amounts for needy and deserving students. Recipients are determined on the basis of scholarship, interest in arts or letters or other cultural pursuits outside the field of medicine, and on the intention of entering neurology or psychiatry as specialists or of being general practitioners. Recipients also must show a need for financial aid. There is no set number.

For Students in the School of Mines

The Central Appalachian Section of the American Institute of Mining, Metallurgical and Petroleum Engineers has awarded three scholarships to male students in Kentucky, West Virginia, and Virginia. These students are eligible to attend any school teaching mining engineering in the area.

The Eastern District of the American Petroleum Institute Scholarship in Petroleum Engineering. This scholarship was established in 1959 by The Eastern District of the American Petroleum Institute. The amount of this scholarship is $500 for one year, and is awarded annually to a University in the Eastern District Area which includes the states of West Virginia, Pennsylvania, Ohio, Kentucky, New York, Virginia, Indiana, and Illinois. It was awarded to West Virginia in 1960. The Scholarship Committee of the Institute will notify the University if a scholarship is to be granted in a given academic year, and will then choose a recipient from recommendations by the faculty of the School of Mines.

Armco Foundation Scholarship. The Armco Foundation of the Armco Steel Company, Middletown, Ohio, established in May of 1954, two scholarships in the field of mining engineering. Each grant provides $250 per academic year. One is awarded to a junior student and the other to a senior student in the School of Mines. Selection of recipients is made on the basis of academic record, character, and personal leadership qualities.

Lorado Coal Mining Company Scholarships. The Lorado Coal Mining Company, beginning in the fall of 1954, provided scholarship grants of $500 each per academic year to two students in the field of mining engineering. Selection of the recipients is made by the Lorado Coal Mining Company with the approval of the Dean of the School of Mines.

Magnolia Petroleum Company Scholarship. This scholarship, in the amount of $400 per year plus fees (not to exceed a total of $500), is awarded to a worthy senior in the petroleum and geological engineering option of mining engineering. It is not available every year, however, for the University shares it with two other institutions.

Socony-Mobil Scholarship in Petroleum Engineering. This is essentially an award to a senior student in petroleum engineering. It consists of $500 plus fees and tuition, and is based on the candidate's interest in the production side of the petroleum industry, and in his career potential.

The G. Ralph Spindler Scholarship Fund. This scholarship fund for varying types of aid to students in mining engineering was established in February, 1961 in memory of the late Dean of the School of Mines.

Clarence Wayland Watson Memorial Scholarship. In the winter of 1955 the University received an anonymous gift for the establishment of the Clarence Wayland Watson Memorial Scholarship. Scholarship aid in varying amounts from this fund will be awarded from time to time to an outstanding and worthy graduate or undergraduate who will pursue some branch of study in coal development or coal research.

The Youngstown Steel and Tube Company Scholarship in Mining Engineering. (1) This scholarship will be awarded annually to a junior regularly enrolled in the School of Mines in mining engineering; (2) a student who is enrolled in some other division of engineering, but who has completed the essential requirements of the first two years from mining engineering and who is transferred to the mining department; and (3) a student who is transferred to the School of Mines from another accredited college and who has completed college work equivalent to the first two years of mining engineering at West Virginia University. The selection of the recipient will be on the basis of recommendations of the faculty of the School of Mines, subject to final approval of the sponsoring company. The student will be continued on the scholarship for his senior year on the basis of satisfactory academic performance and recommendation of the faculty of the School of Mines. The scholarship shall provide a direct payment of $200 a semester.

For Students in the School of Music

Band and Orchestra Participation Scholarships. These grants are awarded to those members of the band and orchestra who are especially well qualified, and who, after two years' service, are invited to remain as members of these organizations. Recipients receive allowance in the form of remission of fees. There is no specific number.

Mrs. Russell Mac Murphy Chase Scholarship in Piano. The School of Music was named in the will of the late Mrs. Russell Mac Murphy Chase, the University's first piano teacher, as the recipient of the sum of $1,500, the income of which is to be used for scholarships in the piano department.

Presser Foundation Scholarship. This scholarship, established in 1952 by the Presser Foundation of Philadelphia, provides an annual grant of $400 for the aid of a student in the School of Music of good character and satisfactory standing, who may not carry on his studies without financial help provided by the foundation. Preference is given those who expect to become teachers.

University Band Drum Major Scholarship. The Board of Governors in 1953 established a drum major scholarship to be awarded annually. It entitles the recipient to remission of all fees, except those payable to State special funds and those chargeable to special services.

For Students in the School of Nursing

C. Jeanette Oswald Fund Scholarship. The principal sum is invested, the income of which is to be used to aid students who are registered nurses and wish to continue their work toward a degree in nursing.

Mary Jane Parry Scholarship. The estate of Mary Jane Parry, who for many years was a prominent nurse in Charleston, provides an annual scholarship of $250 to a student in the School of Nursing. Selection of the recipient is based on need and scholastic ability.

Patrons' Scholarships. Grants of $50 to $100 per semester are available from private unrestricted contributions to the School of Nursing. These are awarded on the basis of need.

West Virginia Nurses Association Scholarship. Contributions from 10 districts of the West Virginia Nurses Association provide a nursing scholarship of $250 annually to be awarded to a student who shows outstanding promise of nursing leadership and who has need of financial assistance.

For Students in the School of Pharmacy

The American Foundation for Pharmaceutical Education. To encourage academic achievement the Foundation provides scholarships of $200 for required college expenses. Selection is made by the School of Pharmacy from students in the top quarter of each class who maintain a "B" or higher average. Recipients are identified as "Scholars of the American Foundation for Pharmaceutical Education." Application must be made to the Dean's office before July 1 each year.

Loyalty Permanent Endowment Fund Scholarship. In 1959 the West Virginia State Pharmaceutical Association made a contribution of $5,000 to the Loyalty Permanent Endowment Fund to provide a scholarship for a pharmacy student in need, academic ability, moral character, and extracurricular activities. Amounts may be made to the Dean's office before July 1 each year.

The Pepsodent Presidential Scholarship. This scholarship, consisting of $100 a year for five years, is awarded annually to a person desiring to study the profession of pharmacy. The recipient of this scholarship is selected by the President of the West Virginia State Pharmaceutical Association. Further information may be obtained from William J. Dixon, Secretary, West Virginia State Pharmaceutical Association, Oak Hill, W. Va.

The Pharmacists of West Virginia, individually and collectively, have provided scholarships in varying amounts for capable students needing financial assistance. These scholarships are awarded annually on the basis of need and satisfactory performance. Application must be made to the Dean's office before July 1 each year.

The following scholarships are available:

Clarksburg Drug Company Scholarship
Ohio Valley Pharmacy Scholarship

For Students in the School of Physical and Health Education, Recreation, and Safety

The Dr. W. Merle Warman Scholarship. This scholarship was established in 1961 by Dr. W. Merle Warman of Morgantown. It provides $400 to a student who has been accepted for enrollment in a school or department of physical therapy. The recipient will be selected by the faculty of the School of Physical and Health Education, Recreation, and Safety. The scholarship is given to encourage physical education students to continue their education in physical therapy.

For Students in Any College or School of the University

Dean Edna Arnold Memorial Scholarship. Associated Women Students established in the spring of 1956 a scholarship in memory of the late Edna Arnold, Dean of Women at the University during the years 1935 to 1955. This scholarship covers full tuition for two semesters. It is presented annually to an outstanding and deserving upperclass woman student.

Claude Worthington Benedum Scholarships. These scholarships are awarded to undergraduate West Virginia residents enrolled in the University on the basis of need, academic ability, moral character, and extracurricular activities. Amounts may vary according to need.

Sophia and Clora Benedum Scholarship Fund. The will of the late Clora Benedum of Bridgeport established a $10,000 trust fund to be known as the Sophia and Clora Benedum Scholarship Fund. The provisions of the will state that "income is to be used in assisting graduates of Bridgeport High School in attending West Virginia University." Two scholarships are awarded each year on the basis of top grades of all students from Bridgeport High School.

Board of Governors Student Body President Scholarship. This scholarship is to be awarded to the student elected as president of the student body during the academic year in which he serves most of his term. The scholarship entitles him to remission of all fees except those for special services.

Delta Delta Delta Local Award Scholarship. This scholarship is open to all undergraduate women attending West Virginia University. It is based on need, scholarship, and service to the community. The presentation is made each spring. For further information contact the Delta Delta Delta Sorority House.

Delta Gamma Alumnae Chapter Scholarship. As a part of the sorority's national philanthropic project, the local alumnae chapter awards $100 annually to a deserving blind student.

Monticola Scholarship. The *Monticola,* the campus yearbook, sponsors one tuition and fees scholarship with a payment of $115 for one semester. It shall be awarded

twice a year to two different individuals. The awarding shall be based on academic achievement and service to the University. Recommendations will be taken from the Academic Deans and Directors, the Dean of Women, and the Director of Student Affairs. These recommendations will then be reviewed by the *Monticola* Scholarship Committee.

Morgantown Business and Professional Women's Club Scholarship Loan Fund. The Morgantown Business and Professional Women's Club will award a scholarship loan to a junior girl who is a resident of Monongalia County and graduated from a Monongalia County secondary school and who has given evidence of academic achievement, need, and good moral character. The amount of the scholarship loan will be $230 per year. Repayment is to begin at least six months after the recipient's graduation and is to be repaid in full within two years after graduation. There is no restriction as to the field of study.

O. J. Morrison, Jr., Memorial Fund. This is a bequest to the University for the establishment of a trust fund for scholarships in memory of O. J. Morrison, Jr., of Charleston, former University track captain. This gift was provided for in the will of Freda Morrison Smith, who died in 1955. Mrs. Smith expressed the wish that the earnings from the trust fund go to aid such boys and girls who for financial reasons would not be able to attend college. Mrs. Smith and Mr. Morrison were two of the five children of the late O. J. Morrison of Charleston, founder of the Morrison department stores.

Olin Mathieson Employees' Scholarship. The employees of Olin Mathieson Chemical Corporation (Morgantown Ordnance Plant) established a scholarship fund in West Virginia University for the purpose of giving aid and encouragement to children and/or grandchildren of former employees of the Corporation's Morgantown operation wherever they may now reside, to secure college training in any chosen field of study. The value of this scholarship is $200, and the recipient may continue to receive such grants from year to year for four years if academic and character standards of the University are met. (It is planned to expand this to a double scholarship, providing equal amounts to each of two individuals). The recipient will be chosen by the University, and selection of applicant will be made on the basis of: (1) ability to do college work, (2) character and personality, and (3) need for financial assistance to attend college. Candidates from any undergraduate class rank may be considered. In case no candidates are available from families of employees for a period of three consecutive years, the University is free to select other worthy recipients who may qualify under the above conditions.

F. F. McIntosh, Jr., Scholarship. This scholarship in memory of F. F. McIntosh, Jr. is awarded annually to a young man or woman from Roane County and has a value of $100 per year. Selection of the scholar will be made by the West Virginia University Alumni of Roane County.

Sigma Tau Sigma Scholarship. This scholarship is given by the Sigma Tau Sigma student tutoring honorary in the hope that it will help some deserving student who for financial reasons would not be able to remain in the University. It carries a stipend of $50 per semester in the form of a grant, if the student will accept $50 in the form of a loan to be repaid within one year after he graduates or leaves school. It will be awarded on the basis of scholastic ability and need.

The Louise and Arlen Swiger Scholarship Fund. This is a trust fund given to the West Virginia University Foundation for the support of scholarships in the University to aid worthy students. The scholarship is inactive at this time.

Ella May Turner Scholarship. The will of the late Miss Ella May Turner provided that annual scholarship grants of $50 each be awarded to the two Jefferson County students who earned the highest academic averages at the University each academic year.

West Virginia Division of the United Daughters of the Confederacy Scholarship. This scholarship was established in 1950 by the West Virginia Division of the United Daughters of the Confederacy. It has a value of $100 per year. Selection is made by the United Daughters of the Confederacy.

For Foreign Students

Board of Governors Foreign Student Scholarships. These two scholarships are available to undergraduate foreign students. Recipients are entitled to remission of all fees except those payable to State special funds and those chargeable to special services. They are awarded at the discretion of the President of the University, usually to supplement campus or civic awards, or in case of emergency.

West Virginia Federation of Women's Clubs Pan-American Scholarship. The winner of this scholarship is remitted tuition fees by the Board of Governors, and receives room, board, books, and other incidentals from the federation.

West Virginia Home Demonstration Council Foreign Scholarship. This scholarship, established in 1949 for the purpose of promoting better understanding between the rural peoples of the United States and of foreign countries, provides for books, board, and other necessary living expenses, and remission of fees for a foreign student enrolled in the Division of Home Economics.

West Virginia University All-Campus Foreign Student Scholarship. The All-Campus Foreign Student Committee, representative of several campus organizations, in 1951 established a one-year scholarship for the support of a foreign student. Board, room and incidental expenses are paid annually by the committee, with remission of tuition and fees provided by the University.

Graduate Scholarships

For Students in the College of Agriculture, Forestry, and Home Economics

Andrew Delmar Hopkins Scholarship in Entomology. This scholarship, established in 1954, is in memory of Dr. Andrew Delmar Hopkins, internationally known entomologist and for many years director of the West Virginia University Agricultural Experiment Station. It is for $200 per year and is awarded to a worthy senior or graduate student with an interest in entomology, who has demonstrated originality and research ability.

For Students in the College of Arts and Sciences

Board of Governors Scholarships. On March 14, 1961, the Board of Governors authorized the establishment of four scholarships for each class in the Department of Social Work. The scholarships entitle recipients to remission of all fees except those payable to State special funds and those chargeable to special services.

National Society of Colonial Dames of America Scholarship. The society in 1952 established an annual scholarship for the aid of a worthy graduate student for work in the field of early American history. The annual value of the scholarship is $150. This award rotates among several institutions.

R. M. Davis Scholarship in Political Science. R. M. Davis, late Morgantown coal operator, gave the University the sum of $5,000 to establish a scholarship in the Department of Political Science. The scholarship, with an average annual value of between $300 and $500, is granted to an undergraduate or graduate student whose specialty is international relations. Scholastic standing and qualities of leadership will be given primary consideration.

The Children and Family Service Association, Wheeling. A work-study stipend of approximately $1,300 per year may be granted to employees of that agency or candidates for employment desiring to make commitment to work year-for-year. Preference given to second-year students. Candidates must have been admitted for graduate social work education. Applications for graduate social work education may be obtained from the Department of Social Work.

Family Service Association of Lycoming Valley, Williamsport, Pa. Variable amount, year-for-year commitment required. For information inquire of: Robert Janos, executive-director, Family Service Association, Williamsport, Pa.

Family Service of Cincinnati and Hamilton County, 2343 *Auburn Ave., Cincinnati* 19, *Ohio.* First- and second-year grants are available to students who are able to accept commitment to work at agency for a minimum of one year (preferably longer) following training. Preference to those who have had previous social work experience. Inquire of Department of Social Work.

Family Service of Lynchburg, Virginia. Scholarship of $1,500 for first year and at least $1,500 for second year. Commitment required. Address inquiries to Department of Social Work.

Family and Children's Service, 808 *House Bldg., 4 Smithfield St., Pittsburgh* 22, *Pa.* Scholarships available, preferably to second-year students who plan employment at agency for at least one year thereafter. Admission to Department of Social Work required before applying to agency.

Family and Children Service, 708 *Commerce Bldg., Erie Pa.* Applicant must be in second year of graduate work. Preference given to Erie and Erie County residents. Acceptance of scholarship carries obligation to accept employment with agency for one year following completion of course, if employment is offered. Inquire of Department of Social Work.

Family Service Association of Wyoming Valley, Wilkes-Barre, Pa. Approximately $1,000. Year-for-year commitment required. Inquire of: Miss Dorothy Cohen, executive director, Family Service Association, Wilkes-Barre, Pa.

Family Service Society, 309 *Wick Bldg., Youngstown* 3, *Ohio.* Scholarships of $1,800 for first year and $2,000 for second year. Commitment year-for-year. Field work in a family service agency for one period is required. Address inquiries to: Earl D. Morris, executive secretary, or to Department of Social Work.

Family and Children's Service, Harrisburg, Pa. Scholarship for graduate in social work education. Variable amount. Year-for-year commitment. Inquire of: Mrs. Lenore S. Meffley, executive secretary, Family and Children's Service, 201 South St., Harrisburg, Pa.

Jewish Family and Children's Service, 508 *Third Ave., Pittsburgh* 19, *Pa.* First- and second-year scholarships available for students who plan to do field work in agency. Commitment one year of employment after graduation for each year of scholarship. Apply to Department of Social Work.

Jewish Family and Children's Service, 508 *Third Ave., Pittsburgh* 19, *Pa.* First-, second- and third-year grants available. Either field work or employment commitment required. Admission to accredited school required before applying to agency. Inquire of Department of Social Work.

The Junior Leagues Scholarships. This scholarship, providing $200 a year for a graduate social work student, was established in 1942. It is jointly supported by the four leagues of West Virginia. Applicants must be residents of the State, and all applications are to be addressed to the Department of Social Work.

Maryland Department of Welfare Work-Study Plan. By arrangement with the West Virginia University Department of Social Work, employees of the Allegheny County Welfare Board, the Garrett County Welfare Board (and other local offices within commuting distance of Morgantown) may undertake two years of graduate social work education while employed by the agency at approximately $275 per nine months. Admission to the school is determined in the regular way. Field work is planned in advance in a unit of the Maryland Department of Welfare. Inquiries should be addressed to Chairman, Department of Social Work.

Mental Health Traineeships. Four to six traineeships in the amount of $1,800 per year for first-year students and $2,000 for second-year students are available from the National Institute of Mental Health, U. S. Department of Health, Education, and Welfare. Candidates who plan to prepare for a career in psychiatric social work are eligible to apply. Admission to the Department of Social Work for graduate study is a prerequisite. Inquiry or applications are to be made to the Department of Social Work.

The Morgantown Service League Scholarship. This scholarship provides $200 a year for a full-time student in the Department of Social Work. The recipient must be a resident of West Virginia, and must be approved by the Chairman of the Department of Social Work.

Pennsylvania Department of Welfare, Bureau of Children's Services, Educational Stipends. These stipends are an approximate amount of $275 per month and are available for persons who want to secure training in social work before beginning employment with Child Welfare Services, as well as for staff members who may apply for Educational Leave for professional training. Candidates for scholarships will be selected on the basis of their interest in Rural Child Welfare and their potentialities for successful performance in the profession of social work. They must: (1) meet the minimum qualifications for employment; (2) be able to qualify for admission to an accredited school of social work; and (3) be interested in public child welfare in rural counties and free to work in any part of the Commonwealth on a commitment of one year of employment for each year of training received. Applications should be made to Miss Jean Farquhar, Training Advisor, Bureau of Children's Services, Department of Welfare, Harrisburg, Pa.

Rehabilitation Traineeships in Social Work. Four or more traineeships in the amount of $1,800 per year for first-year students and $2,000 for second-year students are made available by the Office of Vocational Rehabilitation, U. S. Department of Health, Education, and Welfare. Candidates who plan to prepare for future work in rehabilitation of the physically or mentally handicapped are eligible to apply. Admission to the Department of Social Work for graduate study is prerequisite. Inquiry or application should be made to the Department of Social Work.

United Fund of Kanawha Valley Educational Stipends in Social Work. Two stipends of $1,500 per year each are available to candidates who desire to serve, upon completion of social work education, in one of the agencies in the Kanawha United Fund area (Charleston, West Virginia and vicinity). Two agencies currently designated to receive and grant these stipends are the Family Services of Charleston and the West Virginia Children's Home Society. Application is made to Department of Social Work.

Family Service of Charleston. See *United Fund* (above). Inquire of: Miss Mary Buckingham, executive secretary, Family Service of Charleston, 1117 Virginia St., Charleston 1, W. Va.

West Virginia Children's Home Society (including Davis Child Center). See *United Fund* (above). Inquire of: Miss Betty Heavener, director, Washington St., E., Charleston, W. Va.

U. S. Veterans Administration, Department of Medicine and Surgery, Social Service, Paid Field Work. Second-year students whose field placements are in the social service of a Regional Office or Hospital may apply for status of paid field work "employee." Remuneration is $2.40 per hour, that is, approximately $1,100-$1,900 during a block placement.

The West Virginia Federation of Women's Clubs Scholarship in Social Work. This scholarship provides $150 a year and is awarded to a full-time student in the Department of Social Work. The recipient, selected by the Chairman of the Department of Social Work, must be a resident of West Virginia.

West Virginia Department of Public Assistance Scholarships. These educational leave stipends, available from the Social Service Division and The Child Welfare Division, amount to $175 per month plus dependents' allowances and tuition. They are available to employees of the Department, including applicants who are accepted for employment with a view to obtaining graduate education in social work The recipient agrees to work for the Department of Public Assistance at least one year for each year of educational benefits received. In exceptional circumstances, employees may receive stipends to complete the senior year in college. Application for the stipend is made to Mr. Benjamin Guy III, Chief, Division of Social Service, or to Miss Lillian Nagy, Chief, Division of Child Welfare. Applicants must have been granted admission for graduate education in social work; applications to West Virginia University should be addressed to the Department of Social Work.

For Students in the School of Dentistry

Board of Governors Dental Scholarships. By action of the Board of Governors of West Virginia University, twenty dental scholarships were established in 1961. The scholarships, divided equally between the four dental classes, provide for the payment of the recipients' tuition and registration fees.

To be eligible to receive a Board of Governors Dental Scholarship, applicants must have been enrolled or admitted to the School of Dentistry and must rank above the fiftieth percentile of their class in the School. In the case of entering freshmen, distinct professional promise, as indicated by performance on the Dental Aptitude Test, is used as a criterion for selection.

The Board of Governors Dental Scholarships are awarded for the number of semesters remaining in the normal course of the recipient's dental education. Such continuation, however, is assured only if a recipient maintains his academic position in the upper fiftieth percentile of his class (unless probationary status is recommended by the Supervising Committee), and if he shows evidence of leadership and good professional attitudes and maintains a satisfactory moral character.

Dental Hygiene Scholarship. The Women's Auxiliary to the Wheeling District Dental Society established, in the fall of 1962, a scholarship for a West Virginia resident enrolled in the Division of Dental Hygiene. To be eligible, the applicant should have had at least one semester of college work. This scholarship is in the amount of $80 per semester. Previous academic achievement, personal integrity, and financial need are evaluated by the examining committee in considering the selection of the recipient.

For Students in the College of Education

Lakin Roberts Memorial Scholarship. This scholarship is open to graduate students in education and is worth $200 per year.

For Students in the College of Law

Board of Governors Scholarships. In 1961 the Board of Governors established four annual scholarships for each class in the College of Law. Each scholarship entitles the recipient to waiver or remission of all tuition and fees except those covering miscellaneous student activities and special services. These scholarships are awarded to students who establish a reasonable case of need for financial help and who have demonstrated academic achievement and professional promise.

In awarding scholarships in the first-year class, special emphasis will be given to need for financial assistance; academic achievement and professional promise for members of this class will be weighed on the basis of the applicant's collegiate record, including extracurricular activities, but in no event will an applicant be considered unless he was graduated with at least an over-all B average. To be awarded a scholarship in his second or third year, a student must have a C+ average on his law school work. A scholarship awarded to a student will be continued for his remaining year or years if his financial need continues unchanged and he maintains a C+ average on his work in the College of Law.

Applications must be submitted on forms which may be obtained from the Secretary, College of Law, West Virginia University. Applications of each school year will be accepted between May 1 and September 1 preceding that year. Applications received after September 1 will be considered only in the event of a vacancy.

For Students in the School of Medicine

Board of Governors Scholarships. On March 14, 1961, the Board of Governors authorized the establishment of six scholarships for each class to be awarded annually to graduate students in the School of Medicine. The scholarships entitle the recipients to remission of all fees except those payable to State special funds and those chargeable to special services.

For Students in the School of Mines

Clarence Wayland Watson Memorial Scholarship. In 1955 the University received an anonymous gift for the establishment of the Clarence Wayland Watson Memorial Scholarship. Aid in varying amounts from this fund will be awarded from time to time to an outstanding and worthy graduate or undergraduate who will pursue some branch of study in coal development or coal research.

For Students in Any College or School of the University

The Masonic Grand Lodge Scholarship. This scholarship to be awarded to a graduate student who is a candidate for either the Master's or Doctor's degree. Student must have a high scholastic rating in his undergraduate or in his graduate work, not hold any other fellowship, scholarship, assistantship or grant, must enroll for a full program of courses, and be recommended by the chairman of his department. The annual stipend is $800 for one year only. Applications should be submitted to the Dean of the Graduate School, on or before July 15.

Sphinx Scholarship Award. This scholarship, established in the fall of 1960 by Sphinx, senior men's honorary, is awarded to a senior male student. The recipient must have attained a 3.0 overall average for his previous three years of study, and also must be in need of financial assistance.

Prizes and Awards

Awards for prizes in the University are made in accordance with the following rules:

No composition, in whole or part, shall be submitted in competition for two prizes.

Only students pursuing courses leading to baccalaureate degrees are eligible for any prize, except for the James F. Brown Prize.

No student shall be eligible to enter any contest who has not been a resident student in this University for at least one semester preceding the semester in which the contest is to held, and who, unless he be a competitor for the James F. Brown Prize, is not a resident student in good standing in the University in the semester in which the contest is held.

No successful contestant may become for a second time a competitor for the same prize.

Students intending to compete in any essay-writing contest must notify the Scholarship Coordinator no later than March 15. Three typewritten copies of each essay must be in the hands of the chairman of the committee not later than May 15.

The conditions upon which the awards in the several contests are made may be learned upon application to the office of the Scholarship Coordinator.

For Students in the College of Agriculture, Forestry, and Home Economics

Borden Agricultural Award. This award, established in 1954 for an initial five-year period, is in the amount of $300 annually. It is made to the senior student majoring in agriculture who has achieved the highest grade in all college work preceding the senior year, and who has included in his curriculum two or more dairy courses. It is supported by the Borden Company Foundation.

Borden Home Economics Award. This award, established in 1954 for an initial five-year period, is in the amount of $300 annually. It is made to the senior student majoring in home economics who has achieved the highest average grade in all college work preceding the senior year, and who has included in her curriculum two or more courses in foods and nutrition. The award is supported by the Borden Company Foundation.

The La Verne B. Davis Home Economics Award. This award of $25 was established and is supported by Mr. and Mrs. Richard Earle Davis. It is presented annually to the graduating senior in the Division of Home Economics who has maintained the highest scholastic average during four years of residency.

The Koehler Award. This award, sponsored by Tau Chapter of Phi Lambda Upsilon, holds a cash value of $100. It is to be given to a sophomore student majoring in chemistry, chemical engineering, pharmacy, or agricultural science with the following requirements: a 3.5 grade-point average on a minimum of 11 hours of chemistry course work, and a 3.5 grade-point average on total academic record for a minimum of three semesters (not including summer terms).

The Charles Pfizer and Company Award. This award goes annually to an outstanding student who plans a career in extension work.

The Virginia Dare Award. An award of $25 and a plaque goes annually to the outstanding senior student in dairy foods. It is maintained by the Virginia Dare Extract Company.

West Virginia Junior Chamber of Commerce Wildlife Management Scholarship Award. This award consists of $500 annually to the winner of a state-wide essay contest on "Financial Benefits to Be Derived From a Local Conservation Project." The winner also must meet all entrance requirements of the University.

For Students in the College of Arts and Sciences

The Waitman Barbe Memorial Prize. The English Club offers a prize of $25 in memory of Waitman Barbe, poet, scholar, and adviser to the English Club during his long term of faculty service. It is awarded to some student, officially enrolled as a junior or senior, for creative work in the field of literature, either in prose or in poetry or in both. The minimum length of such compositions must be 4,000 words of prose or 100 lines of poetry.

The William Jennings Bryan Prize. The Honorable William Jennings Bryan, before his death, gave a sum of money, the actual income of which is offered as a prize ($50) to the student in the University who shall write the best essay on some subject in the science of Government.

Chi Omega Sorority Prize. This $15 prize goes to the sociology major with the highest academic ranking. All work done at the University is taken into account. No student is eligible to compete unless his junior or senior years have been spent at West Virginia University.

The Koehler Award. This award, sponsored by Tau Chapter of Phi Lambda Upsilon, holds a cash value of $100. It is to be given to a sophomore student majoring in chemistry, chemical engineering, pharmacy, or agricultural science with the following requirements: a 3.5 grade-point average on a minimum of 11 hours of chemistry course work, and a 3.5 grade-point average on total academic record for a minimum of three semesters (not including summer terms).

The West Virginia Society of the Sons of the American Revolution Award. This award of $100 goes each year to the writer of the best essay on a special topic in the field of West Virginia history during the colonial and early national periods.

For Students in the College of Commerce

West Virginia Society of Certified Public Accountants Award. In the fall of 1957 the West Virginia Society of Certified Public Accountants established one or more awards of $100 each to be given annually to a student at West Virginia University in the last semester of his junior year as an accounting major, the selection of such student to be made by the Dean of the College of Commerce.

The Erwin Award in Accounting. This $100 award is given in April of each year to a student in the College of Commerce majoring in accounting. The college applies the criteria of scholarship, character, and interest in accounting in selecting winners.

The West Virginia Tax Institute Award. This $100 award goes annually to a senior in the College of Commerce on the basis of scholarship, character, professional promise, and interest in the field of taxation.

The West Virginia Banking Association Award. In 1961 the West Virginia Banking Association established a scholarship award to be given to a student in the College of Commerce. It holds an annual stipend of $750. The recipient is chosen by the Scholarship Committee in the College of Commerce.

The Daniel S. Witschey Award. Robert E. Witschey offers $50 each year to an outstanding student majoring in accounting.

For Students in the College of Engineering

The Koehler Award. This award, sponsored by Tau Chapter of Phi Lambda Upsilon, holds a cash value of $100. It is to be given to a sophomore student majoring in chemical engineering, chemistry, pharmacy, or agricultural science with the follow-in requirements: a 3.5 grade-point average on a minimum of 11 hours of chemistry course work, and a 3.5 grade-point average on total academic record for a minimum of three semesters (not including summer terms).

Dr. H. P. Simons Award in Chemical Engineering. An award, established in 1961 by Omega Chi Epsilon, chemical engineering honorary, in honor of Dr. H. P. Simons. It consists of $25 to be awarded to the chemical engineering senior who made the greatest academic improvement as a junior.

The James Wimer Memorial Award. This award pays tuition for one year. The donor desired anonymity. The award is given to the senior making the highest average his first three years in chemical engineering.

The Rufus A. West Award. The late Rufus A. West, a former instructor, because of his interest in the College and in the young men who have been and are students therein, and with the further idea of promoting sound scholarship, bequeathed $10,000, the income from which is used as an annual award to the member of the graduating class of the College of Engineering who has maintained the highest scholarship as measured by his grade-point average on the last 35 hours of University credit.

For Students in the College of Law

The James F. Brown Prize. James F. Brown, alumnus, "with a desire to stimulate the young men of the State to fuller consideration of the 'inalienable rights of mankind,' and especially those guaranteed by the Constitutions of the State and the United States," has contributed $5,000 to the University, the income from which is to be "used as a prize for the best essay or paper each year on the subject of the individual liberties of the citizen as guaranteed by the Constitutions." The income may be given as a single prize, or it may be divided into a first and second prize. For the present the award is made as a single prize of $200. The subject for the essay for the current year may be obtained from the secretary of the College of Law. Any regularly enrolled student within one year after receiving an undergraduate degree may compete for the prize. Graduates of the College of Law or the School of Medicine, or holders of any postgraduate degree, are not eligible to compete for the prize.

The Nathan Burkan Memorial Prize. The American Society of Composers, Authors, and Publishers has established the Nathan Burkan Memorial Competition, open to the leading universities and colleges of the country that offer courses in law. A prize of $100 is available to each institution, to be awarded to the student in the graduating class in law who prepares the best paper on the subject of "Copyright Law."

The Frank Enslow Legal Scholarship Award. The late Mrs. Frank Bliss Enslow of Huntington provided in her will a trust fund in support of the Frank Bliss Enslow Legal Scholarship at the University. This annual award is restricted to students enrolled in the College of Law, and selection is made on the basis of ability, character, financial status, and scholarship qualifications. Recipients must be residents of West Virginia, and preference will be given applicants from Cabell County. The amount of the scholarship will be determined from year to year. A second-year man holding the scholarship award can repeat as its winner during his final year if conditions warrant.

The Patrick Duffy Koontz Scholarship Awards. The late Patrick Duffy Koontz and Arthur Burke Koontz have donated to the University certain securities, the income from which is used for the purpose of establishing scholarship awards in the College of Law for worthy students from West Virginia. The value of each scholarship is $250, and there are as many as four or five in operation concurrently. These awards are to be made to such second- or third-year students who show outstanding promise with respect to scholastic ability and attainment, moral force of character, and leadership.

The Tax Commission Prize. Five members of the State Tax Commission in 1902 —W. P. Hubbard, Henry G. Davis, John K. Thompson, L. J. Williams, and J. H. Holt —gave the sum of $1,350, later increased by unawarded sums to $1,500, the income from which is used annually as a prize for the "best original work bearing on matters of taxation in West Virginia." The conditions of the competition are determined by the Council of Administration. The prize at present is in the amount of $50. The subject for the essay for the current year may be obtained from the secretary of the College of Law.

The Tax Institute Award. The West Virginia Tax Institute has established a Tax Institute Award of $100 to be made annually to the student in the College of Law who is judged by a faculty committee to have demonstrated the most interest and to have been most proficient in the study of tax law.

The West Virginia Law School Association Awards. The West Virginia Law School Association has established annual scholarship awards to such third-year member and such second-year member of the student board of editors of the *West Virginia Law Review* as, in the judgment of the faculty of the College of Law, shall have made outstanding contribution to the *West Virginia Law Review*. The amount of each of these two annual awards is $50.

For Students in the School of Medicine

Thomas E. and Marjorie Losh Pyles Award. This award was established in 1962 by the estate of Marjorie Losh Pyles Boeck. A sum of $50 will be awarded each spring to the sophomore student in the School of Medicine who has achieved the outstanding record among his classmates in pathology.

For Students in the Division of Military Science and Air Science

MILITARY SCIENCE AWARDS (Annual)

American Ordnance Association Gold Scholarship Key. The American Ordnance Association awards each year a gold scholarship key to the outstanding senior Army ROTC student commissioned in the Ordnance Corps.

Armed Forces Communications and Electronics Gold Medal Award. The Armed Forces Communications Association awards a medal each year to the outstanding Army ROTC students majoring in Electrical Engineering.

Association of the United States Army ROTC Medal. The Association of the U. S. Army awards each year a medal to the junior Army ROTC student most outstanding in military aptitude.

Lt. James C. Borden, Jr., Memorial Trophy. The West Virginia University Mountaineer Rifle Club and Gamma Pi Chapter of Sigma Nu Fraternity award each year a bronze trophy to the outstanding rifleman on the Varsity Rifle Team. The winner's name is inscribed on a plate on the base of the trophy which remains on permanent display in the Armory.

Department of the Army Superior Cadet Ribbon. The Department of the Army awards each year a ribbon to the outstanding all-around Army ROTC student in each class.

The Legion of Valor of the United States of America Bronze Cross. This cross is awarded each year to the outstanding senior student in the U. S. Army XX Corps who has been previously awarded the Department of the Army Superior Cadet Ribbon.

Lt. James E. Marshall Memorial Trophy. The Beta Psi Chapter of Beta Theta Pi Fraternity awards each year a bronze trophy to the most outstanding West Virginia University Army ROTC senior infantry student. The winner's name is inscribed on a plate at the base of the trophy which remains on permanent display in the Armory. A small metal emblem attesting to the honor is presented to the recipient.

The Dr. Ralph Mershon Memorial Award Certificate and Check ($250). The certificate and check are awarded yearly to the outstanding (nation-wide) Distinguished Military Graduate who accepts a Regular Army commission.

The National Defense Transportation Association Medal. This medal is awarded each year to 20 outstanding senior students, nation-wide, who are in the upper one-fourth of their classes and are recommended by the Professor of Military Science and the deans of the colleges in which the students are enrolled.

The Professor of Military Science Camp Certificate and Ribbon. This certificate and ribbon is awarded each year to the junior student with the highest over-all summer camp score.

The Professor of Military Science Certificate and Ribbon. This certificate and ribbon is awarded each year to a freshman and sophomore student who is in the upper 10 per cent of their ROTC class, the upper one-half of their academic class, outstanding in military proficiency, and who has contributed to the U.S. Army ROTC program and to the University.

The Quartermaster Association Medal. This medal is awarded each year to 10 outstanding junior and senior students, nation-wide who are in the upper one-fourth of their classes and are recommended by the Professor of Military Science and the deans of the colleges in which the students are enrolled.

The Society of American Military Engineers Gold Medal. This medal is awarded each year to 20 outstanding junior and senior students, nation-wide, who are recommended by the Professor of Military Science and the Dean of the College of Engineering as outstanding engineering students of the year.

West Virginia Reserve Officers Association Medal. The West Virginia Reserve Officers Association awards medals each year to the senior Army ROTC student and sophomore Army ROTC student most outstanding in military aptitude.

West Virginia Society of the Daughters of the Founders and Patriots of America Medal. The West Virginia Society of the Daughters of the Founders and Patriots of America awards a medal each year to the freshman Army ROTC student most outstanding in military aptitude.

West Virginia Sons of the American Revolution Medal. The West Virginia Sons of the American Revolution awards each year a medal to the sophomore Army ROTC student most outstanding in military proficiency.

AIR SCIENCE AWARDS

AFROTC Academic Achievement Device. Awarded each full semester to all AFROTC students attaining a cumulative academic grade-point average of 3.00 or higher and a minimum of "C" or higher in air science for the preceding semester. Any cadet who fails to maintain the criteria described above must relinquish the award until he can again meet the established criteria.

AFROTC Band Ribbon. Presented to each member of the AFROTC band in recognition of his voluntary participation.

AFROTC Drill Team Medals. Presented annually to the three outstanding members of the drill team, one to an advanced cadet, one to a sophomore cadet, and one to a freshman cadet.

AFROTC Rifle Club Medals. Presented to the three top-average seniors in the AFROTC Rifle Club. Miniature silver rifles are presented to each member of the AFROTC Rifle Club.

AFROTC Sponsor's Trophy. Presented annually to the outstanding AFROTC sponsor as determined by the advanced AFROTC class.

Air Force Association Silver Medal. The Air Force Association presents this award to the outstanding cadet in the junior year of air science for outstanding leadership, scholarship, and campus activities.

Air Force ROTC Area Championship Rifle Team Plaque and Certificate. Presented to the highest scoring rifle team within each AFROTC area, excluding the winner of the Secretary of the Air Force ROTC Rifle Match Award.

Air Force ROTC Commandant's Certificate. Presented annually to the most outstanding junior or senior cadet at the summer training unit.

Air Force Times Award. This award is presented annually to the graduating cadet who has distinguished himself by contributing materially to constructive public attention for the cadet corps.

The Air Science Honor Squadron Plaque. Presented each full semester to the AFROTC squadron attaining the highest ratings for performance at all drill periods during the semester.

Armed Forces Communications and Electronics Association Gold Medal and Certificate. Presented to a senior cadet majoring in electrical, electronics, or communications engineering who demonstrates outstanding qualities of military leadership, high moral character, and definite aptitude for military service.

Boeing Aircraft Award. Presented annually to an advanced cadet who has displayed a continuing interest in flying and possesses outstanding academic achievement and leadership potential.

Chicago Tribune Gold and Silver Medals. Each year this award is presented to one cadet in each air science year for military achievement, scholastic attainment, and high moral character.

Colonel Joe W. Compton Gold Key. Presented to a senior cadet for outstanding service to the University, the AFROTC Wing, and for demonstrating high qualities of personality, character, and leadership, in memory of Colonel Joe W. Compton, professor of air science from 1953 to 1955.

Distinguished AFROTC Cadet Badge. Awarded to each individual designated as a Distinguished Air Force ROTC Cadet.

General Dynamics Certificate and Trophy. Presented to an outstanding sophomore selected for Advanced AFROTC in a category leading to flight training.

National Defense Transportation Silver Medal. Presented to a senior who has demonstrated outstanding leadership qualities, academic achievement, and aptitude for military science and noteworthy service in the promotion of preparedness for national defense.

The Professor of Air Science Academic Medal. Awarded to the student in each air science year who attains the highest grade in air science.

Secretary of the Air Force AFROTC Rifle Match Trophy. Presented to the highest scoring rifle team in the national match competition.

Society of the American Military Engineers Gold Medal. This award is presented to the top 20 juniors and the top 20 seniors in Engineering throughout the nation who are enrolled in Air Science.

Sons of the American Revolution Bronze Medal. Presented to a freshman cadet for exhibiting in his work a high degree of leadership and military bearing.

West Virginia Reserve Officers Association Gold and Bronze Medals. Presented to a senior and to a sophomore cadet for outstanding leadership in campus activities.

For Students in the School of Mines

The Charles E. Lawall Award. This award was created in 1952 through the generosity of D. L. McElroy of Pittsburgh and is given in the first semester of each year to the senior student maintaining the best scholastic average in the first 100 hours of the required curriculum. Students in the coal mining option and the oil and gas option are eligible. The award carries a cash payment of $50.

West Virginia Coal Mining Institute Prize for Students in the School of Mines. In order to stimulate interest on the part of mining engineering students in their profession, the West Virginia Coal Mining Institute offers a prize of $25 each year to a member of the graduating class of the School of Mines. The student must be enrolled in the coal mining option and his scholarship must be the highest of that group as measured by his grade-point average.

West Virginia Oil and Natural Gas Association Prize for Students in the School of Mines. In order to stimulate interest on the part of oil and natural gas engineering students in their profession, the West Virginia Oil and Natural Gas Association offers a prize of $25 each year to a member of the graduating class of the School of Mines. The student must be enrolled in the oil and natural gas option, and his scholarship must be the highest in that group as measured by his grade-point average.

For Students in the School of Nursing

Betty Harris Prize for Freshman Achievement. This cash prize is awarded at the end of the freshman year to the student elected by vote of her classmates and faculty as having been most outstanding during the freshman year.

For Students in the School of Pharmacy

The Bristol Award. This award, consisting of the latest edition of Howard's *Modern Drug Encyclopedia,* is made to the graduating senior contributing most to pharmacy during the year.

The Central Pharmaceutical Journal Pharmacy Administration Award. The *Central Pharmaceutical Journal* offers an annual award of $25 to the member of the graduating class receiving the highest grades in Pharmacy Administration.

Dean's Mortar and Pestle Award. A hand-polished birch wood replica of a Revolutionary War Mortar and Pestle is awarded annually to a senior student for excellence in Pharmacy Administration. The award is sponsored by Johnson & Johnson. The recipient is entitled to contend for a national award of $500.

Gay H. Dent Award. Gaylord H. Dent, a successful pharmacist of Morgantown, bequeathed to the School of Pharmacy the sum of $500. The interest on this money is used to maintain the Gay H. Dent Award, which in some measure typifies the personal traits of the donor. The award is made biennially to the graduating senior, who, in the opinion of the members of the senior class, is most likely to succeed in the profession of pharmacy because of a love of service, a genial personality, and natural leadership.

Gay H. Dent Essay Award. Funds have been provided for awarding $25 to the student of the School who submits the best essay on some pharmaceutical subject during the second semester of the school year. A committee of students selects the subject for the essay and judges the entries.

Kappa Psi Fraternity Grand Council Scholarship Key and Certificate. The Grand Council of Kappa Psi awards annually a gold scholarship key and certificate to the graduating member of the Beta Eta Chapter of Kappa Psi who also earns First Honors in Scholarship in the entire graduating class.

Kappa Psi Scholarship Honors Certificate. Second- and third-year members of the Beta Eta Chapter of Kappa Psi, who have maintained a "B" average during the current year, are awarded Scholarship Honors Certificates by the Grand Council of Kappa Psi.

Kappa Psi Scholastic Achievement Award. The local chapter of Kappa Psi pharmaceutical fraternity offers an annual award of $25 to the member of the Second-Year Class having the highest scholastic average during the year. The name of the recipient is inscribed upon a plaque located in the School.

Lehn and Fink Medal. Through the generosity of Lehn and Fink Products Corporation, the School of Pharmacy awards each year an engraved gold medal plaque to the member of the graduating class who attains the highest scholarship.

The Merck Award. Merck and Company, Inc., offers an award consisting of the current editions of *The Merck Index* and *The Merck Manual* to a graduating senior who attains a high scholastic record.

Presidential Gavel Award. McKesson & Robbins, Inc., in recognition of leadership qualities, awards annually a presidential gavel to the president of the Student Branch of the American Pharmaceutical Association.

Rexall Trophy. The Rexall Drug Company awards annually a Mortar & Pestle Trophy to a graduating senior who attains a high scholastic record.

Rho Chi Award. To promote scholarship, Alpha Mu Chapter of Rho Chi awards $25 for the purchase of textbooks to the first-year student attaining the highest scholastic record.

For Students in Any College or School of the University

Scholastic Improvement Award. This award of $75 and an appropriate key is presented at the close of each regular academic year to the freshman resident of Men's Hall showing the highest grade improvement from the first to the second semester of that year. The award was established in 1958 by the action of the faculty resident and proctors' council, with funds to be provided by the Co-op Fund of Men's Hall.

For Senior Members of Football Squad

The 1928 Football Team Scholarship Cup and Prize. Members of the West Virginia University 1928 Football Team established in October, 1959 a prize for the senior football player who has the most outstanding academic record for the first seven semesters in the University. The prize consists of $100 and an engraved cup, to be placed in an appropriate place at the University, with an individual cup to each winner.

Assistantships and Fellowships

Approximately 65 departmental fellowships and assistantships are available to qualified personnel in several of the University's schools and colleges. In addition, many departments offer part-time employment through a non-salary payroll arrangement. Complete information can be obtained from the department involved.

Loan Funds

Listed here are all loan funds available to University students. Most of them contain stipulations regarding their use and applicability. They are administered through the office of the Director of Student Affairs, with the cooperation of advisory committees, University officials, and alumni.

For Students in the College of Agriculture, Forestry, and Home Economics

The Baltimore and Ohio Railroad Fund. A special fund for small loans to students in the College of Agriculture, Forestry, and Home Economics has been established by the Baltimore and Ohio Railroad.

Juanita Ferguson Memorial Loan Fund. This fund was established by friends of the late Juanita Ferguson for the purpose of helping worthy juniors and seniors majoring in the Division of Home Economics. Juniors may apply for a $200 loan and seniors for a $300 loan.

The Maude George Memorial Fund. Charles A. George of Ronceverte in 1950 established this fund in memory of his aunt. Eligible University students from Greenbrier and Monroe counties may borrow up to $50 per semester or $100 per academic year, as long as the fund is in effect.

The Heebink Memorial Loan Fund. This fund was established in 1958 in memory of Gerald Heebink, for almost two decades a dairy extension specialist at the University. It is intended to help needy students to get an education in dairying and related agricultural fields.

H. O. Henderson Loan Fund. This fund was established October 10, 1960 (with an initial gift of $2,212.80) by former students, friends, and dairy organizations in recognition of the late Dr. H. O. Henderson's 42 years of devoted service to the dairy industry of West Virginia, and is to be used by students majoring in Dairy Science and other allied fields of agriculture. Second-semester freshmen, sophomores, juniors, and senior students are eligible.

Ruth D. Noer Loan Fund. In February, 1961, the Ruth D. Noer Loan Fund was established from contributions by Home Economics alumnae and friends of the Uni-

versity to honor the former Director of the Division of Home Economics. Loans are restricted to the use of junior and senior majors in the Division of Home Economics.

For Students in the College of Arts and Sciences

The John M. Crawford and David B. Crawford Loan Fund. In 1951 the Parkersburg Rig and Reel Company established the John M. Crawford and David B. Crawford Loan Fund with an initial gift of $5,000 to assist accredited students seeking a degree in engineering or geology and who have financial need. Loans are available to students who are graduates of West Virginia high schools, and who are seeking a degree in engineering (preferably petroleum engineering) or geology.

The Lily Belle Sefton Deatrick Student Loan Fund. Established in 1947 by the Campus Club in memory of Lily Belle Sefton Deatrick, former professor of chemistry, this fund provides small loans for students without interest until after graduation. It is administered by the Dean of the College and the Chairman of the Department of Chemistry.

Charles E. Hare Geology Loan Fund. This fund was established by friends and associates of the late Charles E. Hare, Assistant Geologist of the West Virginia Geological and Economic Survey. Loans are made to students majoring in geology and are limited in amounts of $50 per year or $100 over several years.

The Political Science Loan Fund. Established in 1962 with a gift from Captain Melvin G. Cooper of the Air Science staff. Loans are made to students majoring in political science and are normally given on a short-term repayment plan.

The Social Work Alumni Loan Fund. This fund was established in 1951 for the benefit of undergraduate or graduate students in the Department of Social Work, irrespective of residence. Loans are made by the Director of Student Affairs with the approval of the Chairman of the Department of Social Work. No interest is required, and loans are to be repaid within two years after the student has completed his current degree objective.

The West Virginia State Conference of Social Work Fund. This fund was established in 1940. It grants loans, without interest, to eligible full-time graduate social work students who are residents of West Virginia. Detailed information is available from the Chairman of the Department of Social Work.

For Students in the College of Commerce

American Bankers' Association Foundation for Education in Economics Loans. This foundation has assigned to the University three scholarship-loans of $300 each. These will be "awarded only to deserving students of integrity, intelligence, character, competency, and aptitude, whose means of support are dependent wholly or in part on their own labor, to enable them to continue the study of courses in banking and economics in classes of junior grade or above. Scholarship of the highest rank will not be a definite requirement for a loan-scholarship award; however, the foundation desires to encourage students who will become leaders in professional or business life and does not wish loan-scholarships granted to mediocre or inferior students." The loans are available to seniors, graduates and special students in the amount of $300 a semester for a maximum of two semesters. An interest rate of 2 per cent will apply, with repayments and interest beginning the second January 1 following graduation.

College of Commerce Student Loan Fund. This fund, established in 1957, is for small loans of short-term nature, and only for students in the College of Commerce. Loans must not exceed $75 and will not be made for terms longer than 90 days. No interest is charged.

Sterling Enterprises Foundation, Incorporated, Scholarship Loan Fund. This consists of a grant of $5,000 to provide 10 scholarship-loans of $500 each ($250 per semester) to students in the College of Commerce and the College of Engineering. Preference shall be given: (1) children or dependents of Sterling Enterprises employees; (2) residents of Monongalia or Preston counties; (3) any student resident of West Virginia if there are no applicants in the preferential categories. In order to

qualify for continued aid, a student must maintain an average of at least 2.5. Loans are to be repaid at the rate of at least $200 per year. If payments are not made on time, then interest of 5 per cent will be added from the due date.

For Students in the School of Dentistry

American Dental Association—Fund for Dental Education—Dental Student Loan Fund. This fund was established with a contribution from the American Dental Association. Loans are made to first-, second-, third-, and fourth-year dental students and are given under long- or short-term repayment plans. A maximum loan to any one student in any one year is $600. Loans are made only upon the recommendation of the Dean of the School of Dentistry.

Oscar W. Burdats Dental Students' Revolving Loan Fund. In 1955 friends of Oscar W. Burdats in the Wheeling area established a student loan fund for dental students at the University in recognition of Dr. Burdats' outstanding leadership in the dental profession for more than 60 years. The fund will be used for loans to worthy dental students who are residents of West Virginia.

Dental School Student Loan Fund. The first contribution to this fund was made by the Woman's Auxiliary of the West Virginia State Dental Society, in the amount of $400. Undergraduate students of programs under the administration of the School of Dentistry will be eligible to receive loans.

International College of Dentists Loan Fund. This loan fund was established with a grant from the International College of Dentists. Loans from this fund are made on a long-term basis to senior dental students upon recommendation of the Dean of the School of Dentistry. A maximum loan to any student will not exceed $300.

Dentistry Fund—West Virginia University Foundation. Loans to students under the administration of the School of Dentistry may be made from a special fund within the Foundation. Contributions from the West Virginia State Dental Society and from Dr. D. A. Farnsworth in memory of his brother, Dr. F. M. Farnsworth, have been used to establish the principal of this fund.

The W. K. Kellogg Foundation Dental Students' Loan Fund. This Foundation in September 1958 allotted $15,000 to the University for loans to undergraduate dental students in good academic standing who otherwise might not be financially able to continue their education.

For Students in the College of Education

Teachers Training Scholarship Loan Fund. In 1957 the State Legislature created the West Virginia Scholarship Loan Fund for teacher trainees for public purpose of relieving the teacher shortage in schools. In each county there is a selection committee comprised of the County Superintendent of Schools (Chairman) and the Board of Education. Annually, by the first day of May, each county committee shall select and recommend to the State Superintendent of Free Schools for appointment from that county their quota of graduates who are interested in teaching. Each person selected shall rank in the upper third of the members of his or her graduating class, and be a bona fide resident of the county from which selected. Each scholarship loan carries a stipend of $500 for a school year.

For Students in the College of Engineering

Eta Kappa Nu Loan Fund. This fund is available to engineering students in good standing. All loans are subject to the conditions specified by the By-Laws of Eta Kappa Nu; namely, that loans must be approved by a committee consisting of members of Eta Kappa Nu, and that loans are interest free until four months after the student leaves the University.

Charles B. Seibert Memorial Loan Fund. This loan fund was established as a memorial to the late Charles B. Seibert, former professor of electrical engineering at the University. Loans are to be made on a short-term basis to students majoring in electrical engineering.

Sterling Enterprises Foundation, Incorporated, Scholarship Loan Fund. This consists of a grant of $5,000 to provide 10 scholarship-loans of $500 each ($250 per semester) to students in the College of Engineering and the College of Commerce. Preference shall be given: (1) children or dependents of Sterling Enterprises employees; (2) residents of Monongalia or Preston counties; (3) any student residents of West Virginia if there are no applicants in the preferential categories. In order to qualify for continued aid, a student must maintain an average of at least 2.5. Loans are to be repaid at the rate of at least $200 per year. If payments are not made on time, then interest of 5 per cent will be added from the due date.

For Students in the School of Journalism

Robert H. Pritchard Journalism Loan Fund. In 1952 Dr. and Mrs. Frank V. Rueckl of Winnemucca, Nev., established a loan fund in memory of Mrs. Rueckl's father, Robert R. Pritchard, a former member of the West Virginia University Board of Governors and prominent newspaper owner and editor in Weston. This fund of $1,000 is open to use by journalism students who are residents of West Virginia. Loans up to $100 per year may be obtained by a student over four years.

P. I. Reed Journalism Alumni Loan Fund. This fund was started in 1949 by members of the journalism class of 1940 to provide small emergency loans to students majoring in journalism. The fund was raised through contributions of journalism alumni of various classes and named in honor of Professor P. I. Reed, former director of the School of Journalism since it was formed in 1939, and formerly chairman of the Department of Journalism. Loans are to be repaid in one to three months.

For Students in the College of Law

The John W. Davis Fund. This fund was established for the making of loans to outstanding law students, and it aids worthy students each year.

For Students in the School of Medicine

Academy of General Practice Memorial Loan Fund. This fund was established by the West Virginia Chapter of the American Academy of General Practice as a memorial loan fund to honor deceased members of the Academy. Only students regularly enrolled in the School of Medicine may apply for emergency loans from this fund. Loans are limited to $200 per year and $500 total to one individual.

Fayette County Medical Society Student Loan Fund. This fund was established March 30, 1960 by the Fayette County Medical Society with an initial gift of $2,300. Loans are available to sophomore, junior, and senior students of the School of Medicine. Loans are limited to $500 per year per student. First preferences will be given to students from Fayette County, and third- and fourth-year students.

John B. Finley Fund. A fund of $1,000 was contributed by the trustees of the estate of John B. Finley of Pittsburgh, in accordance with his will, to be used to make loans to deserving students in the School of Medicine.

The General Loan Fund for Medical Students. This fund was established in 1958 for the general aid of needy and deserving medical students.

The Kellogg Foundation Fund. The Kellogg Foundation in 1942 allotted $5,000 to the University for loans to students of medicine. Loans may not exceed $500 per year. Interest is charged at the rate of 2 per cent. Students may not borrow until after successful completion of one term in the School of Medicine.

Howard T. Phillips Loan Fund. The late Dr. H. T. Phillips of Wheeling set aside in his will a grant of approximately $1,000 for loans to medical students at the University. Dr. Phillips stipulated that loans from this fund should be made to "students who are deserving as well as needy and who are enrolled in the School of Medicine."

Thomas E. Pyles Memorial Loan Fund. This fund was established in 1958 in memory of Thomas E. Pyles, who died during his first year in the School of Medicine. The fund is used for short-term emergency loans.

Dr. E. J. Van Liere Medical Student Loan Fund. This fund was established September 7, 1960 with an initial gift of $10,000, sponsored by the Alumni Association

of the School of Medicine and given through the West Virginia University Foundation, Inc. It is to be used for the support of students regularly enrolled in the School of Medicine, and is planned for meeting long-term needs, rather than as an emergency fund. Loans are limited to $600 for one academic year, and $2,400 during the entire course of study.

Van Liere Medical Technology Loan Fund. This fund was established in honor of Dr. E. J. Van Liere, Dean Emeritus of the School of Medicine. Loans are made to students majoring in Medical Technology.

William Morgan Winkler Loan Fund. This fund was established by Dr. H. J. Winkler, L'Anse, Michigan, in honor of his son, William Morgan Winkler. Loans are made available from this fund to medical students who have successfully completed at least one full semester of professional work. Loans are limited to $400 for one academic year and to no more than $1,000 during the student's medical school career.

For Students in the Division of Military Science and Air Science

R.O.T.C. Loan Fund. This loan fund, which honors the late Col. Samuel B. Roth, professor of military science and tactics from 1950 to 1953, was established in 1956 by a $200 gift from an anonymous donor. It is to be used to make small emergency loans to students in Advanced Army and Air R.O.T.C.

For Students in the School of Mines

Central West Virginia Coal Mining Institute Scholarship Loan Fund. This fund provides annually two scholarship loans of $700 per year each. The loans are renewable from year to year, and are repayable on a scheduled basis after graduation.

The John M. Crawford and David B. Crawford Loan Fund. In 1951 the Parkersburg Rig and Reel Company established the John M. Crawford and David B. Crawford Loan Fund with an initial gift of $5,000 to assist accredited students seeking a degree in engineering or geology and who have financial need. Loans are available to students who are graduates of West Virginia high schools, and seeking a degree in engineering (preferably petroleum engineering) or geology.

Monongahela Valley Coal Mining Institute Loan Fund. The Institute in 1952 established a loan fund of $1,500 to aid worthy students in the field of coal mining engineering who are residents of Monongalia County. Loans may be made to students beyond their first semester in mining engineering on a short-time basis without interest.

New River and Winding Gulf Mining Institute Scholarship Loan Fund. In February, 1961, the New River and Winding Gulf Mining Institute established a scholarship loan fund of $4,400 to aid deserving students from Raleigh and Fayette counties, West Virginia, enrolled in the mining engineering curriculum of the School of Mines. Scholarship loans may be made to freshmen, upperclassmen, and graduate students.

G. Ralph Spindler Loan Fund. This fund was established in memory of G. Ralph Spindler, late Dean of the School of Mines. Loans are available to junior, senior, and graduate students in the School of Mines. Applicants must have at least a 2.0 overall academic average.

Fred G. Wood and Nannie D. Wood Loan Fund. In 1949 this fund was created by an initial gift of $1,000 from the late Fred G. Wood, a former Raleigh County coal operator. The provisions state that loans shall be made to assist students to receive training in the engineering of coal mines, and that "preference shall be given to students from families engaged in coal mining, or who have grown up in coal mining communities."

Fred G. Wood and Nannie D. Wood Loan Fund No. 2—(Mine Electricians, Raleigh County). This fund was started June 1, 1951 by the late Fred G. Wood with an initial gift of $600, supplemented by one-third of the rental of properties given to the University by Mr. and Mrs. Wood, and is intended to be used by students in the field of mining who are pursuing courses to train them for the supervision and maintenance of electrical equipment used in coal mines. Preference is to be given to students from Raleigh County.

For Students in the School of Music

Weldon Hart Memorial Loan Fund. In 1957 a memorial loan fund was established by friends of Weldon Hart, former director of the School of Music. The emergency fund is available to students enrolled in the School of Music.

For Students in the School of Nursing

C. Jeanette Oswald Loan Fund. This fund was established by a bequest from C. Jeanette Oswald who for many years was in charge of the nursing education curriculum at the University. Loans from this fund are to be made to students seeking degrees from the West Virginia University School of Nursing.

For Students in the School of Pharmacy

Alfred Walker Loan Fund. A special fund for small loans to students registered in the School of Pharmacy has been established in memory of Alfred Walker, the first president of the State Pharmaceutical Association.

For Students in Any College or School of the University

Anne Bailey Chapter of the Daughters of the American Revolution Student Loan Fund. This fund was established by the Anne Bailey Chapter of the Daughters of the American Revolution for the purpose of helping worthy and needy students. Students must have at least a 2.0 academic average to be eligible for a loan from the fund. Loans vary in amount from $10 to $250.

Claude Worthington Benedum Scholarship Loan Fund. The Claude Worthington Benedum Foundation in 1952 established this fund with an original gift of $5,000. Additional gifts have been made to the fund from time to time. Deserving students from West Virginia who are in need of financial assistance to complete their educations are eligible for aid.

The Chauncey Watson Boucher Fund. This fund was established in 1936 by former President C. S. Boucher in memory of his father. Seniors from West Virginia may borrow only for the payment of University fees. Loans must be repaid within two years and are interest free.

Campus Club Loan Fund for Women. Beginning in 1918 the Campus Club established an emergency loan fund for the aid of women enrolled in the University. Small loans for emergency needs are made to women students.

Chimes Loan Fund for Women. Chimes, junior women's honorary, in 1956 established a loan fund for the aid of women students. Loans shall be no less than $10 nor more than $100 and shall be paid in full within the school term. There is no interest charged, but a small contribution is in order for the purpose of maintaining the fund.

Elizabeth McAllister Crawford and John McLenaghen Crawford Fund. The Consolidated Natural Gas System Educational Foundation in 1950 established this fund with an initial gift of $10,000. Its purpose is to assist students who are without other resources from which their educational needs may be met. To be eligible for this aid, a student must be a graduate of a West Virginia high school, enrolled in a course leading to a degree, and must have completed at least the first semester of the freshman year.

Wade Hampton and Hessie Kirk Hampton Memorial Emergency Loan Fund. This fund was established in 1957 by the six children of Wade Hampton and Hessie Kirk Hampton, and is designed to aid in the form of emergency loans any student who is a citizen of the United States. If applicants are numerous, preference is to be given students whose parents are coal miners or are employees in a coal mine.

Charles E. Lawall Fund. This was established in 1939 for small loans to worthy students, and is available to students whose scholastic record has been satisfactory. Interest is payable only for periods in excess of the time for which the loan is granted.

Leon Leonian Memorial Fund. This fund was established in 1945 for small loans to students for short periods without interest. It honors the memory of Dr. Leon Leonian, a former University staff member.

National Defense Student Loan Fund. Congress on August 23, 1958 passed the National Defense Education Act. The Act provides for the creation of a University loan fund from which needy undergraduate and graduate students may borrow on reasonable terms for the purpose of completing their higher education. Special consideration in the selection of loan recipients shall be given to students with a superior academic background who express a desire to teach in elementary or secondary schools, and whose academic background indicates a superior capacity or preparation in science, mathematics, engineering, or a modern foreign language.

C. R. Orton Memorial Loan Fund. This fund, established in 1955, honors the memory of Clayton R. Orton, former dean of the College of Agriculture, Forestry, and Home Economics. It is available for small emergency loans to any University student.

Raleigh County Alumni Association Loan Fund. This association established a loan fund in 1953 for the aid of students enrolled from Raleigh County. Any officially enrolled student who has permanent residence in Raleigh County may procure aid from the fund when it is available.

Revolving Emergency Loan Fund. This fund to meet emergencies of University students was established in 1931. The principal amounts to about $5,000. Loans are of small amounts and are made for short periods of time only.

Helen Sterrett Jones Memorial Loan Fund. This fund of $1,000, established in September, 1959, honors Helen Sterrett Jones, the wife of Edwin Channing Jones, professor and chairman of electrical engineering at the University. It was established by former colleagues in Y.W.C.A. and Mortar Board, in which Mrs. Jones was actively interested. Loans are available to deserving women students who show both need and normal academic progress.

The Ira Errett Rodgers 1928 Football Team Emergency Loan Fund. This fund was established in 1959, by the 1928 West Virginia University Football Team members in honor of their coach, the late Ira Errett Rodgers. This fund is designed to meet emergency needs of the members of the varsity football squad. Loans are to be of small amounts and made for short periods of time only.

Senior Class Loan Fund. A gift of $100 was given by the 1949 senior class to be used for aid to seniors in the University needing financial assistance. The class of 1950 made an additional gift of $100. Small loans are made without interest.

Service Clubs Loan Fund of West Virginia University, Incorporated. The West Virginia Kiwanis District in 1950 established a non-restricted loan fund for needy University students; and more recently other service clubs also have made donations. This fund is available to any student who is in good standing and is in need of financial help. It is operated on a non-profit basis.

Theodore Smith Fund. In 1930 Theodore Smith, a University student, was drowned. His death disclosed the fact that he was being financed through the University by the late James E. Jones. He had taken out a life insurance policy of $2,000 with Mr. Jones as beneficiary. In deference to the memory of Theodore Smith, Mr. Jones turned the $2,000 over to the University for the establishment of this fund.

Stewart Student Loan Fund. This fund was established in 1958 by the faculty and staff of the University to commemorate Irvin Stewart's 12 years as president of the University. Loans for essential expenses are available to any worthy and needy student. No interest is charged while the student is enrolled, nor for six months thereafter. An interest rate of 3 per cent per year will apply thereafter.

P. C. Thomas Fund. This fund was established in 1943 in memory of the late P. C. Thomas of the Koppers Coal Company. The initial contribution made by the employees of the company was $520.

Part II

ADMISSIONS, FEES, AND REGULATIONS

Admission To Undergraduate Colleges and Schools

Candidates for admission to the University may be admitted either by examination or on the basis of official transcript of record. Residents of West Virginia, applying for admission on the basis of graduation from a preparatory school with a minimum of 15 units of high school work acceptable to the University, may be admitted by satisfying one of the following requirements:

1. Presenting a minimum average of "C".
2. Ranking in the upper three-quarters of the graduating class.
3. Qualifying for admission to the University on the basis of testing and/or interview.
4. Satisfying probation requirements after being required to enroll for a try-out period during a preceding summer session.

The American College Testing Program (ACT) is recommended for admission and required for scholarships, placement, and counseling. Students interested in applying for admission to the University should contact their high school early in their senior year for information with regard to ACT. Students who have not taken ACT prior to their coming to the University will be required to take the tests after they arrive on campus.

The various colleges, schools, divisions, and departments of the University may establish additional admission requirements. Transcripts of secondary school record must be received at least three weeks prior to the beginning of the term or semester in which the applicant is interested. The transcripts become the property of the University and are permantly filed in the Office of the Registrar.

In accrediting West Virginia secondary schools, the University follows the classification made by the State Department of Education. Priority will be given to graduates of secondary schools accredited by the North Central Association of Colleges and Secondary Schools. Applicants who do not have transcripts showing graduation from accredited schools or from colleges or universities previously attended, may be permitted to register provisionally, at the discretion of the Committee on Admissions. If satisfactory transcripts cannot be obtained, the registration will be canceled and the fees returned in accordance with the refund schedule. A provisional registration ordinarily will not be continued for more than a week.

Students who are admitted conditionally must make up all deficiencies before they can be classified as sophomores.

ENTRANCE UNIT DEFINED

Requirements for admission to colleges, schools, and divisions of the University are stated in terms of units.

A unit in any subject represents the amount of work that may be done in a standard high school in a year of thirty-six weeks, with five recitation periods per week, of no less than forty minutes each. In courses in which laboratory work is required, from two to three periods of laboratory work are considered the equivalent of one period of recitation according to the amount of outside preparation required in connection with such work.

Graduates of accredited schools may receive credit for work certified with the understanding, however, that no student may enter any college, school or division until he has credit for 15 units, i.e., the work of the standard four-year college preparatory course.

PRESCRIBED AND ELECTIVE UNITS

A. Graduation from high school and fifteen units of high-school work acceptable to the University are required for admission.

B. The following groups are required:

(1) Four units in English[1]
(2) Three units in a second subject
(3) Two units in each of two other subjects

C. The work in "A" must include the following:

For admission to all colleges and schools, 1 unit in elementary algebra.

For admission to the College of Agriculture, in the case of students who elect agriculture or forestry as their major field of study—1 unit in elementary algebra and 1 unit of plane geometry.

For admission to the College of Arts and Sciences, in the case of students who intend to elect chemistry, geology, mathematics, physics, predental, premedical, premedical technology, or pre-pharmacy studies as their major field of study—1 unit of elementary algebra and 1 unit of plane geometry.

For admission to the College of Engineering or the School of Mines, prospective students must be qualified for admission to the University, present credit for 2 units of algebra, 1 unit of geometry (1 unit plane geometry or 1 unit integrated geometry or ½ unit plane geometry and ½ unit solid geometry) and ½ unit of trigonometry.

Students who do not meet these requirements in mathematics may apply for admission to the pre-engineering or the pre-mines course in the College of Arts and Sciences.

It is highly recommended that prospective students take the American College Test (ACT) in the spring preceding their admission to the College of Engineering or School of Mines. Based upon these test results, it is further recommended that those students who require an additional background in mathematics or English attend the summer session of the University, enrolling in courses such as Mathematics 3 (College Algebra), Mathematics 4 (Plane Trigonometry), and English 0. Completion of these courses will permit the student to enter the regularly scheduled engineering program at the beginning of the fall semester.

D. Work in the following subjects not to exceed the number of units placed after each subject will be accepted:

Subject	*Units*	*Subject*	*Units*
English	4	Science[3]	
Speech	1	Botany[4]	1
Journalism	1	Biology[4]	1
Foreign Languages[2]		Chemistry	1
French	3	General Science	1
German	3	Geology	1
Greek	3	Physical Geography	1
Italian	3	Physics	1
Latin	4	Physiology	½
Spanish	3	Zoology[4]	1
Mathematics		Social Studies[5]	3
General	1	History	3
Algebra	2	Social Studies	3
Plane Geometry	1	Vocational Subjects (not to exceed five units)	
Solid Geometry	½	Agriculture	4
Trigonometry	½	Home Economics	3
Drawing		Industrial Training	3
Freehand Drawing	1	Bookkeeping, or bookkeeping and commercial arithmetic	2
Mechanical Drawing	1	Commercial Arithmetic (alone)	½
Aeronautics	1	Commercial Law	½
Art	1	Shorthand	2
Education	2	Typing	1
Music	2		
Health	1		
Physical Education	1		

ADVANCED STANDING EXAMINATION

Application for advanced standing on work of college grade for which college credit cannot be established on the basis of official transcript of record should be made to the Registrar of the University not later than two weeks after the applicant's matriculation. Upon payment of the proper fee the Registrar will issue an examination permit. After examination, the department will report to the Registrar the University courses, if any, which the applicant is entitled to credit.

PHYSICAL EDUCATION GENERAL PROGRAM

All students entering the University with less than 58 semester hours of college credit are required to complete certain courses in physical education, unless previous credit is allowed. All men students take 2 hours of physical education courses, Phys. Educ. 1 and 2, during their first year of residence. All women students take 4 hours of physical education courses, selected with the adviser's approval from Phys. Educ. 3-25, during their first two years of residence. Upper-division women students who wish to elect a physical education course or who have not completed the physical education requirements should select Phys. Educ. 101 or Phys. Educ. 102.

The University Health Service will determine whether students are physically qualified for required physical education courses and for active participation in other University activities.

VETERANS

The University recognizes that men and women from the Armed Forces who enter college require individual and personalized guidance in order to facilitate their entrance and to aid their adjustment to University life. The Veterans' Coordinator is available for consultation and help in the solution of personal problems which may arise in the transition to civilian student life.

Information regarding educational opportunities made possible at the University through provisions of the Service Men's Readjustment Act of 1944 (G.I. Bill of Rights), Public Law 550, and the Vocational Rehabilitation Program of the Veterans Administration (Public Law 16), and the War Orphan's Educational Assistance Act of 1956 (Public Law 634) may be obtained from the Veterans' Coordinator by personal conference or by mail.

An honorably discharged veteran of the armed forces of the United States with a minimum of one year active duty shall be exempted from any additional work in Basic Military and in the Physical Education general program on submission of due proof thereof to the Registrar. Students with six months but less than one year service are exempted from taking the first year of Basic Military. Scholastic hours credit will be allowed for military training for which a student is exempted.

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[1]A student may enter the University with 3 units in English and satisfy admission requirements by making a satisfactory grade on the American College Testing Program English test, or by successfully completing English 1.

In the College of Engineering, the School of Mines, and the Department of Agricultural Engineering, a student may enter with only 3 units in English if he also presents for entrance 2 units in one foreign language.

[2]One unit of Latin will be accepted. No less than 2 units of either French, German, Greek, Italian, or Spanish will be accepted unless sufficient additional work in that language is taken in college to complete a minimum of 2 units.

[3]A group of 2 or 3 units in science may be made by combining 1 unit each of any two or three of the following: biology, botany, chemistry, geology, physics, and zoology.

[4]If a student presents 1 unit in biology for admission, he may have credit for no more than ½ unit in either botany or zoology.

[5]A group of 3 units may be formed by combining 2 units of history with 1 unit of social studies, or by combining 1 unit of history with 2 units of social studies.

DIVISION OF MILITARY SCIENCE AND AIR SCIENCE

Requirements

West Virginia University, a beneficiary of the Act of Congress of 1862, offers in time of peace four-year courses of instruction in Military Science and Air Science. Normally successful completion of one of these courses and degree requirements leads to a commission as Second Lieutenant in the United States Army Reserve, or the United States Air Force Reserve. Distinguished military graduates of West Virginia University may apply for and be offered commissions as second lieutenants in the Regular Army or the Regular Air Force, under conditions prescribed by law.

The course comprises two years of basic training (Military Science 1, 2, 3, and 4, or Air Science 1, 2, 3, and 4); two years of advanced training (Military Science 105, 106, 107, 108, or Air Science 105, 106, 107, and 108); and summer camp for six weeks' duration for Military Science students and four weeks' summer training for Air Science students during the summer following the junior year. The Army summer camp and Air Force summer training is conducted at government expense, and eligible students are paid approximately $75 monthly in addition to traveling expenses at the rate of 5 cents per mile.

All male students not specifically exempt by provisions of the appropriate paragraph below are required by Chapter 18, Article 11, of the official Code of West Virginia, and by orders of the Board of Governors of the University, to complete satisfactorily the entire basic course as prerequisite to graduation from the University.

Within deferment quotas established by Public Law 758, 80th Congress, qualified and selected enrolled students are offered the opportunity of being deferred by the Professor of Military Science or the Professor of Air Science from military service under the Selective Service Act of 1948 and Selective Service Extension Act of 1950, as amended by the Universal Military Training and Service Act, November, 1951 as amended, until completion of their military courses and receipt of the baccalaureate degree. Such deferment is subject to cancellation should the student not be selected for the advanced course, fail to remain in good standing, or fail to develop the qualities expected of an officer.

Curriculum

Basic Course: Instruction averages three hours per week for the four semesters of the freshman and sophomore years. Two hours of instruction each week are conducted in the classroom, and for half of each semester (first half of the first semester, last half of the second semester) a two-hour laboratory is conducted each week in which the student receives instruction in drill and command. These laboratories are held on Tuesday, Friday, and Saturday for Military Science students, and Monday, Thursday, and Saturday for Air Science students. Two hours' credit is allowed for each semester's work.

Advanced Course: The third and fourth years of instruction in Military Science or Air Science comprise the Advanced Course and correspond to the junior and senior years of the student's academic course. Entrance into the advanced course is elective on the part of the student and selective on the part of the services. Selection is based on the student's record and on service regulations and is limited in total numbers of yearly quotas. Application for the Military Science Advanced Course should be made at the beginning of the second semester of the student's sophomore year. Eligibility for the Air Science Advanced Course begins with successful completion of the Air Force Officers Qualifying Test in the second semester of the freshman year. Candidates must pass a physical examination and meet a selection board in the second semester of the sophomore year. A grade-point average of 2.000 is one of the prerequisites for enrollment in the advanced programs.

Each student who is enrolled in the advanced course agrees to complete the course including the summer camp and, if tendered, accept a commission in a reserve component as prerequisites for his graduation from the University unless excused by proper authority.

Air Science advanced course students may be permitted to substitute University courses in the general field of political science for portions of the senior air science curriculum.

Senior Air Science students enrolled in Category I (Pilot) are required to participate in the Flight Instruction Program, if offered. This program consists of 35 hours of ground instruction and 36½ hours of dual and solo flight instruction for the private pilot's license. The 35 hours of ground instruction is included in the junior and senior curriculum. There is no additional fee for this program.

Courses of instruction are listed in Part III of this *Catalog*.

Allowances

The advanced Army or Air Science student is paid a commutation of subsistence allowance of approximately 90 cents per day or $27.00 per month. The Army student is paid monthly and the Air Science student is paid quarterly. A deduction of $1.80 is made from the allowance for each unexcused Military or Air Science class absence.

Uniform, equipment, and Military or Air Science textbooks are issued to all cadets.

Deposit

All basic R.O.T.C. students and advanced Military Science cadets are required to pay a deposit of $20 to cover any loss or damage to Government property while in his possession. This deposit is paid to the University Comptroller at time of registration and it is refunded, less a nominal administrative charge, upon return of the undamaged property. No deposit is required of advanced Air Science cadets. Advanced cadets in both programs are permitted to keep their uniforms upon successful completion of the program.

Exemptions

The following students will not be required to enroll in the Division of Military Science and Air Science, but may elect to do so with the approval of the Professor of Military Science of the Professor of Air Science:

(1) Those who are not citizens of the United States.
(2) Graduate students.
(3) Students who are taking only short courses, the special interim courses, or extension work.
(4) Transfer students who at the time of matriculation have established 58 semester hours with the Registrar of the University.
(5) Students who have successfully completed the two-year basic Army, Navy, or Air Force ROTC course at any institution maintaining a Senior Division unit. Those who have satisfactorily completed one, two, three, or four semesters of ROTC training in a senior division will be allowed comparable hours credit and exemption from comparable military training.
(7) Students who are unable to perform military training.

Students who have had previous training, other than in a senior division ROTC unit, will be allowed exemption from military training as determined by the Professor of Military Science, or the Professor of Air Science, and the Registrar. No credit will be given in Air Science for Junior Division ROTC. Scholastic hours credit will be allowed for military training for which a student is exempted. Students applying for entrance who have had previous ROTC training should request the institution where such training was received to submit the pertinent ROTC student's records to the University, prior to the date of registration.

Students with more than one year of previous honorable active service in one of the armed forces are exempted from taking basic military training (i.e., Military or Air Science 1, 2, 3, 4). Students with six months but less than one year's active service are exempted from taking the first year of the basic course. Scholastic hours credit will be allowed for military training for which a student is exempted. See "Courses of Instruction" (Part III) for Military Science and Air Science.

Exemptions will be determined by the Director of the Student Health Service (physical exemptions), and the Professor of Military Science or the Professor of Air Science, who will notify the Registrar and the student's adviser.

Organization

The Division of Military Science and Air Science and the conduct of military science and air science instruction is the responsibility of the Professor of Military Science and the Professor of Air Science, who together with their military staffs, are officers and non-commissioned officers of the U.S. Army and the U.S. Air Force on duty at West Virginia University.

ROTC Bands

There is an Army ROTC Band and an Air Force ROTC Band. Membership is restricted respectively to basic Army and Air Force ROTC students. Assignment to one of the bands is determined by audition before the Director of the Band.

SPECIAL STUDENTS

Persons who do not desire to become candidates for a degree may, by permission of the Committee on Admissions, be admitted as special students, subject to the following provisions:

1. Special students must be twenty-one years of age or veterans of the armed forces.
2. Special students must satisfy at least 9 units of the requirements for admission, including 2 units in English.
3. Every application for admission as a special student must be presented to the Committee on Admissions and must set forth fully the applicant's reason, together with a detailed statement of studies he desires to pursue.
4. Special students are subject in all respects to the usual rules relating to registration and scholarship. They may be assigned to classes for which they apply, it being understood, however, that admission to any class rests entirely with the instructor in charge, and further, that admission to any class when so granted does not necessarily imply credit for prerequisites.

CREDIT ACCEPTED FROM A JUNIOR COLLEGE

The maximum credit accepted from a junior college accredited by the North Central Association of Colleges and Secondary Schools or other regional accrediting association will not exceed seventy-two (72) semester hours, and credit will be allowed for lower-division courses only. No credit will be allowed for courses completed in a junior college subsequent to attainment of junior or higher rank by the student at the University.

ADMISSION TO THE GRADUATE SCHOOL

Applicants holding bachelor's degrees from West Virginia University or from other accredited institutions may be admitted to the Graduate School. The application for admission must be filed with the Registrar of the University, who will forward the application to the Dean of the Graduate School. The applicant must request the registrar of the college or school previously attended to send an official transcript directly to the Registrar of the University. The application and transcript should be received by the Registrar of the University at least one month in advance of registration days. Application forms may be obtained from the Registrar of the University.

Admission to the Graduate School does not constitute acceptance of the student by the major department of his choice. It merely grants the student permission to seek admission to the department. It is the responsibility of the student to make the contact at once to determine if he will be accepted by the department desired.

Undergraduate deficiencies, generally unsatisfactory background, or lack of adequate facilities in a given department may prevent acceptance by the department.

In such instances, the student either must seek acceptance by another department or register as a "special" graduate student. A "special" graduate student is not a candidate for an advanced degree.

Eligible students who wish to further their education without reference to higher degrees may be admitted to the Graduate School and may elect courses for which they can satisfy the prerequisites.

The Dean of the Graduate School and the chairman of the department in which the student desires to do his major work will advise him concerning departmental prerequisites for admission, candidacy for an advanced degree, and major and minor advanced degree requirements.

Complete information is available in the *Announcements* of the Graduate School.

Graduate Degrees

Graduate degrees offered by departments in the University which have been approved for graduate work are:

Master of Agriculture (M.Agr.)
Master of Arts (A.M.)
Master of Business Administration (M.B.A.)
Master of Home Economics (M.H.E.)
Master of Music (Mus.M.)
Master of Science (M.S.)
Master of Science in Aero-Space Engineering (M.S.A.E.)
Master of Science in Agricultural Engineering (M.S.Agr.E.)
Master of Science in Chemical Engineering (M.S.Ch.E.)
Master of Science in Civil Engineering (M.S.C.E.)
Master of Science in Electrical Engineering (M.S.E.E.)
Master of Science in Engineering (M.S.Eng'g.)
Master of Science in Engineering of Mines (M.S.E.M.)
Master of Science in Extension Education (M.S.Ext.Ed.)
Master of Science in Forestry (M.S.F.)
Master of Science in Home Economics (M.S.H.E.)
Master of Science in Home Economics Education (M.S.H.E.Ed.)
Master of Science in Industrial Engineering (M.S.I.E.)
Master of Science in Journalism (M.S.J.)
Master of Science in Mechanical Engineering (M.S.M.E.)
Master of Science in Petroleum Engineering (M.S.Pet.E.)
Master of Science in Theoretical and Applied Mechanics (M.S.T.A.M.)
Master of Science in Nuclear Engineering (M.S.N.E.)
Master of Social Work (M.Soc.Wk.)
Doctor of Philosophy (Ph.D.)
Doctor of Education (Ed.D.)

Professional Degrees

The following professional degrees are conferred upon graduates of the College of Engineering and the School of Mines on the basis of practical experience and study in absentia, the presentation of a thesis, and an oral examination.

Aero-Space Engineer (A.E.)
Chemical Engineer (Ch.E.)
Civil Engineer (C.E.)
Electrical Engineer (E.E.)
Mechanical Engineer (M.E.)
Engineer of Mines (E.M.)
Petroleum Engineer (Pet.E)

SPECIAL REQUIREMENTS FOR ADMISSION AND TRANSFER

General

Transcripts of college or university records must be sent by the registrar of the other institution directly to the Registrar of the University. All applicants for transfer must present an average based on all work attempted at other institutions of

higher education equivalent to a West Virginia University average of "C" (2.000) or higher. The various colleges, schools, divisions, or departments of the University may establish additional requirements for transfer.

Candidates for degrees at the University must secure written permission in advance from the Registrar of the University before registering for work in other colleges or universities to be transferred back in partial satisfaction of degree requirements here.

Students desiring to transfer from another college, school, or university into the College of Engineering or School of Mines must meet the following requirements:

A. Have a grade-point average of 2.000 or higher for all the college level courses (English 0, Mathematics 0, Mathematics 1, Mathematics 2, and Mathematics 7 count for entrance only).

B. Have a grade-point average of 2.000 or higher for all mathematics courses excluding only Mathematics 0 and Mathematics 1.

The College of Commerce

Applicants seeking admission to the College of Commerce for the purpose of obtaining a degree must have earned at least 58 semester hours of required and approved elective courses in the lower-division curriculum at a grade average of not less than "C."

The School of Dentistry

Applicants for admission to the School of Dentistry should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

A $10 application fee is required and must accompany the application.

Applicants for admission must present evidence of having completed successfully two full academic years (60 semester or 90 quarter hours) of work in the liberal arts in an accredited college based on the completion of the prescribed four-year high school course. All science courses shall include both lecture and laboratory instruction. The college courses shall include not less than six semester hours credit each in English composition and rhetoric, biology (preferably zoology), in physics, in inorganic chemistry, and in organic chemistry. Credits earned in physical education and military science will not be considered.

A dental aptitude testing program is sponsored by the Council on Dental Education of the American Dental Association and approved by the American Association of Dental Schools. Applicants for admission to the School of Dentistry are required to take the aptitude tests and to submit the resulting scores. The scores achieved on these tests will be considered as a factor in the selection of student. The tests may be taken in any one of the forty-six dental schools, or any one of the forty testing centers set up in colleges and universities throughout the United States. Information concerning the places, and the dates on which the tests will be given, may be obtained from the Secretary of the Council on Dental Education, c/o American Dental Association, 222 East Superior Street, Chicago 11, Illinois.

A personal interview with the Committee on Admissions is required. Interviews will be at the Medical Center, West Virginia University, and will be arranged as far as possible, to suit the convenience of the applicant.

Good physical and mental health are essential for the successful study and practice of dentistry. Good eyesight is particularly important. The applicant who is admitted to the School of Dentistry must present on or before the day of enrollment, a certificate from his opthalmologist stating the condition of his eyes, and if any correctible defects in vision exist he shall present evidence that proper corrections have been made.

A deposit fee of fifty dollars is required when the applicant accepts offer of admission. This amount will be applied as part-payment of the tuition fee when the applicant registers for the first semester. The deposit will be forfeited if the applicant fails to register.

Division of Dental Hygiene. The dental hygiene program is a division of the School of Dentistry. Its curriculum offers a four-year degree program for dental

hygienists. Upon the fulfillment of all prescribed requirements and with the recommendation of the School of Dentistry, the candidate shall be awarded the degree, Bachelor of Science in Dental Hygiene. The general admission policies established by West Virginia University shall be met. The applicant must be a graduate of an accredited high school or preparatory school which is acceptable for college entrance. One unit in both algebra and plane geometry will be necessary for admission. The Dental Hygiene Aptitude Test will be required of every applicant.

Further details concerning requirements of the School of Dentistry may be obtained by writing to the Assistant Registrar, Medical Center.

The College of Education

Requirements for admission to the College of Education shall be the completion of 58 semester hours of approved college work, with an average of at least 2 grade points per credit hour on all work attempted. Candidates for a Bachelor's Degree in Education register for their first two years of work in the College of Arts and Sciences. Freshmen and sophomores who expect to enter the College of Education will indicate their intention when they register. Their studies will be directed by advisers for pre-education students. Such students should so arrange their courses of study as to satisfy requirements for junior standing and should be fulfilling requirements for the certification of teachers.

The College of Engineering and the School of Mines

For admission to the College of Engineering or the School of Mines, prospective students must be qualified for admission to the University, present credit for 2 units of algebra and 1 unit of geometry (1 unit plane geometry or 1 unit integrated geometry or ½ unit plane geometry and ½ unit solid geometry) and ½ unit of trigonometry. Students who do not meet these requirements in mathematics may apply for admission to the pre-engineering or the pre-mines course in the College of Arts and Sciences.

It is highly recommended that prospective students take the American College Test (ACT) in the spring preceding their admission to the College of Engineering or School of Mines. Based upon these tests results, it is further recommended that those students who require an additional background in mathematics or English attend the summer session of the University, enrolling in courses such as Mathematics 3 (College Algebra), Mathematics 4 (Plane Trigonometry), and English 0. Completion of these courses will permit the student to enter the regularly scheduled engineering program at the beginning of the fall semster.

Student desiring to transfer from another college, school or university into the College of Engineering or the School of Mines must meet the following requirements:

(A). Have a grade-point average of 2.0000 or higher for all college level courses (English 0, Mathematics 0, 1, 2, and 7 count for entrance only).

(B). Have a grade-point average of 2.0000 or higher for all mathematics courses excluding only Mathematics 0 and 1.

The School of Journalism

A candidate seeking admission to the School of Journalism for the purpose of obtaining a degree must have satisfied requirements for admission to one of the University undergraduate colleges and must have earned at least 58 semester hours of college credit. A student deficient in the physical education service program and military science will be required to take these subjects as soon as possible. During his freshman and sophomore years he should have completed satisfactorily all or most courses specified for prejournalism majors. A prejournalism student not maintaining at least a "C" average during his first two years in all college subjects must apply directly to the School of Journalism Committee on Scholarship for admission to the School.

The College of Law

Application forms may be obtained from the Registrar. Every applicant for admission must request the proper registrars to send directly to the Registrar at least one

month prior to registration a complete transcript of record in every college or university attended. Evaluation of credentials is made by the Registrar.

No applicant will be admitted who previously shall have attended another law school and who shall be ineligible to return to that school in good standing. No applicant will be admitted who has been convicted of a crime which is ground for the annulment or suspension of a license to practice law in West Virginia.

Beginning students are admitted to the College of Law only at the beginning of the first semester.

All candidates for the degree of Bachelor of Laws must present a baccalaureate degree from an institution of approved standing. Any degree from such an institution will be regarded as satisfying the requirements for admission provided that, in the opinion of the Scholarship Committee of the College of Law, the degree satisfies the entrance requirements of the Association of American Law Schools.

All candidates for admission to the College of Law are required to take the Law School Admission Test (LSAT), administered by the Educational Testing Service, Princeton, New Jersey. Students entering in September, 1963, will be permitted to take this test after their enrollmnt but prior to final examinations for the first semester.

Beyond the general requirement as to acceptable credits, the College of Law does not prescribe the courses which must be presented for admission. It is essential, however, that a student, before entering upon the study of law, should have a thorough grounding in English, particularly English composition. A student will not be graduated with the degree of Bachelor of Laws if he is markedly deficient in the use of English; and if it appears upon his written examinations that he is seriously handicapped in this regard, he will be required to correct the deficiency before he is permitted to continue in the College of Law. A student should also have a comprehensive grounding in history, particularly American history and constitutional history, and in general, in enough of the social sciences and humanities to give him a broad informational and cultural background and to develop in him a disciplined reasoning faculty. It is desirable to include some courses in mathematics, accounting, economics, and Latin. The individual needs of the student, however, may well be considered and it is therefore inadvisable to lay down fixed rules.

Applicants for admission to advanced standing must satisfy the ordinary requirements of admission to the first-year class, must have successfully pursued the study of law in a school which if in the United States is a member of the Association of American Law Schools, and must have received credit for courses equivalent to those required of students in the College of Law. Such applicants must have received an average of "C" or its equivalent on all work taken at such other law school or law schools. The extent of credit allowed for work done elsewhere is determined by the Scholarship Committee. A student will not be allowed credit, however, for work carried in another law school unless the student received thereon a grade of "C" or its equivalent.

The School of Medicine

Applicants for admission to the School of Medicine should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

A $10 application fee is required and must accompany the application.

The requirements outlined below may be met in either of two ways: first and preferably, by pursuing a course of study leading toward a Bachelor's Degree with major and minor fields of the applicant's own choosing; or secondly, by following a more rigidly prescribed curriculum generally offered as a "Premedical" curriculum. In either case, the applicant must have completed satisfactorily the minimum requirements listed below:

English Composition and Rhetoric	1 year
Zoology or Biology (with laboratory)	1 year
Inorganic Chemistry (with laboratory)	1 year
Organic Chemistry (with laboratory)	1 year
Physics (with laboratory)	1 year
Social Studies	1 year

A total of 90 semester hours of work exclusive of military or air science and physical education is required.

The number of students the medical school can accommodate is strictly limited. Applications for admission are considered by the Committee on Admission of the School of Medicine, which selects those with the higest qualifications of scholarship and personal fitness. An important factor is the score of the applicant in the Medical College Admissions Test sponsored by the Association of American Medical Colleges and given at suitable times. Students should consult premedical advisers about this test or should write to Educational Testing Service, P. O. Box 592, Princeton, New Jersey. Applications for admission may be made as much as a year in advance of the opening date.

Each applicant is expected to deposit $50 before his name is entered upon the official list of those accepted to the School of Medicine. If the applicant enrolls, this sum is applied to the tuition of the first semester. If the application is withdrawn after the applicant has been offered a place and has made a deposit, such deposit may be refunded at any time prior to January 15 of the year in which enrollment is anticipated.

Admission Requirements for Medical Technology. Admission requirements for the first year (pre-medical technology) are those for the College of Arts and Sciences, namely, 15 units of high school work including subjects specified in the *Announcements* of the College of Arts and Sciences. Mathematics, chemistry, and physics are very desirable.

Admission to the third year (Medical Technology 1) is based upon two years of collegiate work with a total of 67 hours, exclusive of military science, as follows:

English. 12 semester hours. (Must include 6 hours composition and rhetoric and 6 additional hours in literature.)

Biological Science. 8 hours. (General Zoology or General Biology are acceptable.) hours; Organic Chemistry, 4 hours.)*

Chemistry. 16 hours. (Inorganic Chemistry, 8 hours; Quantitative Analysis, 4 hours; Organic Chemistry, 4 hours.)*

Physics. 8 hours.

Physical Education. 4 hours for women, 2 hours for men. (University requirements for students taking first two years in residence.)

Algebra. 3 hours.

Electives to complete the required hours. Electives should be in the fields not covered in the required subjects. Courses such as bacteriology, parasitology, and comparative anatomy should not be taken until after the completion of the sophomore year. A foreign language is recommended for students who plan to do graduate work.

Further details concerning admission requirements of the School of Medicine or the Division of Medical Technology may be obtained by writing to the Assistant Registrar, Medical Center.

The School of Music

Students who meet University entrance requirements are admitted to the School of Music provided they pass the freshman music talent tests to the satisfaction of the examining committee, and meet the Applied Music entrance requirements as set forth in the published *Announcements* of the School of Music. All students will be examined at least twice a year, in January and in May, to determine the progress made.

Students transferring to the School of Music from other colleges and schools will be required to present a minimum average of 2.0. Exceptions may be made in the case of first-semester freshmen.

In the School of Music special provision may be made to permit talented individuals to take work in Applied Music without credit.

Advanced standing in applied music is given only by examination.

*It is recommended that, if possible, the 8-hour course in Organic Chemistry be taken.

The School of Nursing

Applicants for admission to the School of Nursing should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

A $10 application fee is required and must accompany the application.

The School of Nursing requires that applicants graduate from an approved high school in the upper one-third of the class. Applicants must meet University entrance requirements as to high school subjects and should preferably show strong preparation in mathematics, sciences, and languages. Each applicant must also submit scores from testing by the American College Testing Service (ACT). Pre-entrance medical and dental examinations are required. Applicants will be notified regarding appointment for personal interview with faculty of the School as soon as all application materials have been received.

Students in other schools and colleges who wish to apply to transfer to the School of Nursing will be required to present a minimum average of 2.5 (C+) for previous college work. Transfer students are accepted as beginning sophomores and must complete a minimum of three years in the School of Nursing.

Each applicant is expected to deposit $50 before her name is entered upon the official list of those accepted to the School of Nursing. If the applicant enrolls, this sum is applied to the tuition of the first semester. If the applicant fails to enroll, this deposit fee is forfeited by the applicant.

Registered nurses who wish to complete requirements for the baccalaureate degree are admitted as special students with advanced standing in nursing courses.

Inquiries should be directed to the Assistant Registrar, Medical Center.

The School of Pharmacy

The professional curriculum of the School of Pharmacy is based on two years of pre-pharmacy requirements. The pre-pharmacy course requirements are as follows:

Algebra	3 hr.	Chemistry, General	8-10 hr.
Trigonometry	3 hr.	Chemistry, Quantitative	3 hr.
English Composition	6 hr.	Physics	8 hr.
Principles of Economics	3 hr.	Chemistry, Organic	8 hr.
Public Speaking	3 hr.	Electives to make 60 hours	
Biology, General	6-8 hr.		

The 60-hour requirement is exclusive of Military Science or Air Science, or Physical Education. In selecting electives, emphasis should be placed on the humanities and social sciences. A "C" average is considered the minimum standard for admission.

Applicants for admission to the School of Pharmacy should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

A $10 application fee is required and must accompany the application.

Each applicant is expected to deposit $25 before his name is entered upon the official list of those accepted to the School of Pharmacy. If the applicant enrolls, this sum is applied to the tuition of the first semester. If the applicant fails to enroll, this deposit fee is forfeited by the applicant.

Complete information may be obtained from the Dean of the School of Pharmacy or from the Office of the Assistant Registrar, Medical Center.

REGISTRATION

Persons not registered as University students and who are not members of its administrative or teaching staffs shall not be admitted to regular attendance in University classes.

All students are expected to register on days set apart for registration at the beginning of each semester or term of the University.

Immediately after completion of their registration, all students must pay their fees at the Comptroller's desk in the Field House Annex (South).

Late Registration

No student will be permitted to register in the University after the eighteenth day of a semester or the ninth day of either term of the Summer Session, without the special permission of the dean of the college or school which he proposes to enter. No student registering late will be permitted to enroll for more hours of work than the number of weeks in actual attendance without the permission of the Committee on Scholarship of the college or school concerned.

Visitors

Full-time University students may attend classes as visitors, provided they obtain the written permission of their advisers and of the instructors in classes they desire to visit. Members of the administrative or teaching staffs, or other regular employees of the University, may attend classes as visitors provided they obtain written permission of the chairmen of their departments and of the instructors in the classes which they desire to visit.

No record is kept of the work and attendance of persons admitted to classes as visitors and no credit is given for their work in such classes.

Persons eligible to attend classes in the University as visitors may obtain the proper blanks from the Registrar.

Auditors

Students may enroll in courses without working for grade or for credit by registering as auditors and by paying full fees. Credit or audit status must be indicated at the time of registration. *No charge in status from audit to credit or from credit to audit will be made at any later date.*

Fees and Expenses

All University fees are subject to change without notice.

All fees are due and payable at the Comptroller's desk in the Field House Annex (South) on the days of registration. Students must pay fees before registration is accepted and class tickets are released. Completion of arrangements for payment from University payroll checks, officially accepted scholarships, loan funds, grants or contracts shall be considered sufficient for acceptance of registration. Fees paid after regular registration must be paid at the Comptroller's office in the Administration Building. Any student failing to complete registration on regular registration days is subject to the late registration fee of $10. Students registering pay the fees shown on page 85, plus special fees and deposits as required.

The second Saturday following the beginning of General Registration for a semester is the end of the first refund period. The second Saturday following the beginning of General Registration for a summer term is the end of the refund period.

By order of the Board of Governors, no degree will be conferred upon any candidate prior to payment of all tuition, fees, and other indebtedness to any unit of the University.

Service Charge on Returned Checks

A service charge of 5 per cent of the amount of each check returned unpaid by the bank upon which it is drawn shall be collected unless the student can obtain an admission of error from the bank.

If the check returned by the bank was in payment of University and registration fees, the Comptroller's office shall declare the fees unpaid and registration canceled if the check has not been redeemed within three days from date of written notice. In such a case the student may be reinstated upon redemption of the check, payment of the 5 per cent service charge, and payment of a late payment fee of $10.

Remission of Fees

Tuition and fees will be remitted to a student registered in the Graduate School or the College of Law who is employed to the University on a regular appointment, subject to the following:

(a) In no case will there be remission of fees payable to State special funds or those charged to special services (see "Special Fees") and flight fees.

(b) Except as provided in "c", a graduate teaching or graduate research assistant will receive remission of tuition and fees commensurate with the hours of service required by the terms of his appointment.

(c) A faculty member on full-time appointment at any recognized institution of higher learning located in West Virginia who is taking a course of graduate study at the University and holds an appointment as a graduate assistant under the terms of Order No. 3071 of the Board of Governors will receive full remission of tuition and fees.

(d) A regular appointment is effective at the beginning of a semester or a summer term. Exemption from tuition and fees must be claimed at the beginning of the registration period or, in the case of a substitute appointment, within ten days after the appointment has been made.

(e) A student who holds a regular University appointment and is eligible for remission of tuition and fees in the second semester of any regular academic year is also eligible for remission of tuition and fees in the summer session immediately following his term of appointment.

Students on regular University appointment who are registered in the Graduate School or the College of Law for twelve credit hours or more in any semester, or for five credit hours or more in any five-week summer term, and who qualify for remission of fees, are not subject to the fees payable to State special funds. They are not entitled to the services provided thereby without payment of the appropriate additional fees.

The wife (or husband) of any person employed by the West Virginia University Board of Governors for a faculty position with the rank of instructor or above, or for a research position of equivalent rank, or as the administrative head of a University division, or as an assistant administrative head, shall be charged the same fees as resident students. The dependent children of the person so employed shall also be charged the same fees as resident students.

Effective from the date of employment, a full-time employee of West Virginia University shall be charged the same tuition and fees as resident students.

Special Fees

Late-registration fee (non-refundable)[6]	$ 10.00
Graduation fee[7]	10.00
Professional Engineering degree (including $10 graduation fee)	25.00
Student's record fee[8]	1.00
Certificate in Home Economics	2.00
Associate in Arts Degree	2.00
Special extra fee for flight training:	
A.E. 171	100.00
A.E. 172	100.00
A.E. 173	100.00
A.E. 181	100.00
A.E. 182	200.00
Fee for change in registration (after 8th day)	1.00
Fee for examination for entrance credit, per unit	1.00
Fee for examination for advanced standing	3.00
Fee for General Educational Development tests (high-school level)[9]	15.00
Certificate of Advanced Study in Education	2.00
Social Work certificate	2.00
Fee for reinstatement of students dropped from the rolls	3.00
Fee for examination of candidates for graduate degree[10]	1.00

Diploma replacement fee	5.00
Physical Education Student Activity Fee	5.00
Student Identification Card Replacement Fee	1.00
Correspondence Course in Guided Reading (per course)	1.00
Driver Education Laboratory Fee	10.00
Labor Education Service (for informal activities)	2.00-10.00
Social Work Field Instruction Fee (per year)	75.00

Fee for Extension Work

A fee of $12 per semester hour is charged for each extension course.

Fees for Undergraduate and Graduate Music Students

I. Full-time students:

A. Registered for Bachelors' or advanced degrees in Music or the Supervisory Training Program (in music):

1. Resident students ..... $115.00 per semester
2. Nonresident students ..... $380.00 per semester

B. Registered in other colleges or schools, including the Graduate School, except as noted above in "A":

1. Class courses in Music, the regular fee for the college or school in which registered with no additional fee.

2. Applied Music, the regular fee for the college or school in which registered plus Music fees as follows:

a. Band and orchestra instruments, voice, piano, organ[11] $20.00
b. Applied Music Classes in band and orchestra instruments, piano, voice ..... $ 5.00
c. Ensemble: Chamber Music, Accompanying ..... $ 5.00

II. Part-time students:

A. Class courses in Music at the respective fee per credit hour (for resident students, $8 per semester hour; for nonresident students, $28 per semester hour).

B. Applied Music along with at least one other class course, the fee for the Applied Music shall be the respective fee per credit hour plus music fees as follows:

	LESSONS PER WEEK	
	One	*Two*
1. Band and orchestra instruments, voice, piano, organ	$20	$35
2. Applied Music Classes in band and orchestra instruments, piano, voice	$5.00 per semester	
3. Ensemble: Chamber Music, Accompanying	$5.00 per semester	

C. *Only* courses in Applied Music, the fee shall be the respective fee per credit hour plus Music fees as follows:

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[6]This fee is not charged to full-time students who complete registration during the regular registration days as set forth in the University Calendar. This fee is not charged to part-time students who complete registration by the close of office hours on the second Saturday following the beginning of General Registration.

[7]The graduation fee is payable by all students at the beginning of the semester or term in which they expect to receive their degrees.

[8]One transcript of a student's record is furnished by the Registrar without charge. This fee is charged for furnishing an additional transcript.

[9]If the applicant applies for admission to and registers in the University within twelve months of the date of his qualifying for the test, a ten dollar credit shall be established for him.

[10]For graduate students not otherwise enrolled at time of final examination.

[11]Maximum, one lesson per week.

	LESSONS PER WEEK	
	One	*Two*
1. Band and orchestra instruments, voice, piano, organ	$27	$39
2. Applied Music Classes in band and orchestra instruments, piano, voice	$5.00 per semester	
3. Ensemble: Chamber Music, Accompanying	$5.00 per semester	

Piano and Pipe-Organ Practice:

(a) Piano for practice—one hour a day, $6 per semester; two hours, $10; three hours, $14, four hours, $18.

(b) Pipe-organ practice—one hour a day, $10 per semester.

(c) Band and orchestra instruments—rental fee $2.50 per semester.

Summer Session Fees[12]

	Resident	*Nonresident*
Tuition, per semester hour (Agriculture, Forestry, and Home Economics; Arts and Sciences; Commerce; Education; Engineering; Journalism; Mines; Music; Physical and Health Education, Recreation and Safety)	*8.00[12],†	**20.00
Tuition per semester hour (Dental Hygiene, Law, Medical Technology, Nursing, Pharmacy)	*9.00†	**22.00
Tuition, per semester hour (Dentistry and Medicine)	*12.00†	**28.00
Health Service fee, per term	2.00	2.00
Mountainlair fee, per term	1.50	1.50
Cultural Program fee, per term	.75	.75
Student Union Building fee, per term	1.00	1.00

*Includes $4.00 per semester hour Registration Fee.
**Includes $12.00 per semester hour Registration Fee.
†The maximum registration fee for West Virginia residents shall not exceed $40.00 for the Summer Session.

Semester Fees (See Page 85)

A part-time student (graduate or undergraduate) enrolled for courses in two or more colleges and schools shall pay fees at the rate per semester hour effective for the number of hours in each college and school.

If the student (graduate or undergraduate) is enrolled for 12 or more hours in courses offered by two or more colleges and schools, but less than 12 in any one, he shall be considered to be a full-time student and shall pay the fees for special services (Athletics, Health Service, Mountainlair, Cultural Program, and Student Union Building) in addition to the part-time rates per hour for courses in each college and school.

If the student (graduate or undergraduate) is enrolled for 12 or more hours in courses offered by colleges and schools in Group I, he shall pay the full-time rate effective for Group I. (Does not include Flight Training. Does not include Applied Music for students who are not candidates for degrees in Music.) This student shall pay the part-time rate for any courses in colleges and schools in Group II and Group III.

If the student (graduate or undergraduate) is enrolled for 12 or more hours in courses offered by colleges and schools in Group II, he shall pay the full-time rate

[12]The maximum tuition fee for West Virginia residents shall not exceed $40.00 for the Summer Session.

SEMESTER FEES IN THE COLLEGES AND SCHOOLS

(See Footnotes 13, 14, 15, 16, and 17)

	Full Time		Part Time (Per Semester Hour)	
	Resident	Nonresident	Resident	Nonresident
GROUP I Agr., For., and Home Econ. Arts and Sciences Commerce Education Engineering Journalism Mines Music Physical and Health Education, Recreation, and Safety	$65.00* plus Registration Fee of $50.00.	$230.00* plus Registration Fee of $150.00.	$4.00 plus $4.00 per semester hour Registration Fee.	$16.00 plus $12.00 per semester hour Registration Fee.
GROUP II Dental Hygiene Law Medical Technology (Jr. and Sr. Years) Nursing Pharmacy	$80.00* plus Registration Fee of $50.00.	$255.00* plus Registration Fee of $150.00.	$5.00 plus $4.00 per semester hour Registration Fee.	$17.00 plus $12.00 per semester hour Registration Fee.
GROUP III Dentistry Medicine	$142.00* plus Registration Fee of $50.00.	$360.00* plus Registration Fee of $150.00.	$8.00 plus $4.00 per semester hour Registration Fee.	$26.00 plus $12.00 per semester hour Registration Fee.

*Includes Athletics Fee $8; Student Organizations Fee $1.25; Daily Athenaeum Fee $.75; Health Service Fee $6, (for Dental Hygiene; Medical Technology, junior and senior years; Dentistry and Medicine $9); Mountainlair $4; Student Union Building Fee $3; and Cultural Program Fee $2.

Parkersburg Branch of West Virginia University: $20.00 per semester hour.

effective for Group II and may elect courses in colleges and schools in Group I at no additional cost or may elect courses in colleges and schools in Group III at the part-time rate effective for Group III. (Does not include Applied Music or Flight Training.)

If the student (graduate or undergraduate) is enrolled for 12 or more hours in courses offered by colleges and schools in Group III, he shall pay the full-time rate effective for Group III and may elect courses in Group I or Group II at no additional cost. (Does not include Applied Music or Flight Training.)

Deposits

The deposits required are: breakage deposit in chemistry, $7 or $12; breakage deposit for students enrolled in medical technology courses and in the School of Medicine, $10; for students enrolled in other colleges and schools of the University electing courses in medical technology or medicine, $5 for one laboratory course and $10 for more than one course; military or air science deposit, $20; breakage deposit in dentistry, $10; nursing $12; pharmacy, $10. Students enrolled in certain courses in Pharmacy, Medical Technology, Medicine, or Dentistry must pay a microscope rental fee of $20 per semester.

Cost of an Academic Year's Work

A student's textbooks will cost approximately $75 a year, and his registration fees $230 to $390 if he is a resident; or $760 to $1,020 if a nonresident. Students in engineering will use drawing instruments costing from $15 to $30. The laboratory breakage deposit required ranges from $7 to $12, a part of which is usually returned at the end of the year. In air and military science a $20 deposit is required to cover military equipment in the custody of the student, practically all of which is returned to the student when he accounts for his equipment. Board and room may be obtained at from approximately $600 to $650 a year. Traveling expenses, clothing, and other miscellaneous items will depend largely upon the taste and habits of the individual student. In general, however, it may be said that the legitimate cost of a 9-month term of residence at the University ranges from $1,100 to $1,600.

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[13]A full-time student is one who is registered for 12 or more semester hours of work each semester of the regular acadmic year, or 5 or more semester hours of work during the Summer Session. A full-time student during the regular academic year receives an Identification Card which entitles him to admission to all athletic events. A full-time student during the regular academic year or during the Summer Session is entitled to free medical consultation and advice from the University physician. A moderate charge is made for room calls, X-rays, special laboratory tests, drugs furnished by the University Pharmacy, minor operations, treatment of fractures and dislocations, and intravenous treatment.

[14]A part-time student is one who is registered for fewer than 12 semester hours per semester during the regular academic year, or for fewer than 5 semester hours during the Summer Session.

[15]No person shall be considered eligible to register in the University as a resident student who has not been domiciled in the State of West Virginia for at least twelve consecutive months next preceding college registration. No nonresident student may establish domicile in this State, entitling him to reduction or exemptions of tuition, merely by his attendance as a full-time student at any institution of learning in the State. A minor student whose parents acquire a West Virginia domicile after the student's original registration will be deemed to have the domicile of his parents and become entitled to pay resident fees. Moreover any student who has originally paid nonresident fees may become entitled to pay resident fees, if after an interim of nonattendance or otherwise he has established a valid legal domicile in this State at least twelve months prior to his registration in the University. In any event, the appointment of a guardian for a minor student temporarily resident in West Virginia, other than the designation of a natural guardian, shall not in and of itself operate to establish a West Virginia domicile for such student.

[16]The minimum rate for non-credit courses is that charged for one semester hour of credit.

[17]Athletics Fee, Student Organizations Fee, Daily Athenaeum Fee, Health Service Fee, Mountainlair Fee, Cultural Program Fee, and Student Union Building Fee, all chargeable to Special Services, nonrefundable during this period.

Refunding of Fees

A student who officially withdraws from the University may arrange for a refund of fees by submitting to the University Comptroller evidence of approval of the refund by the Registrar.

To withdraw officially a student must apply to the Registrar for permission. Semester fees will be returned in accordance with the following schedule:

First refund period ending on the second Saturday following the beginning of General Registration.	50% of Athletics Fee, Student Organizations Fee, Daily Athenaeum Fee, Health Service Fee, Mountainlair Fee, Student Union Building Fee, and Cultural Program Fee, all chargeable to Special Services; and all other semester fees less $2.50. (Under no circumstances is the amount retained less than $2.50).
Second refund period ending on the fourth Saturday following the beginning of General Registration.	50% of Athletics Fee, Student Organizations Fee, Daily Athenaeum Fee, Health Service Fee, Mountainlair Fee, Student Union Building Fee, and Cultural Program Fee, all chargeable to Special Services; and 80% of all other semester fees.
Third refund period ending on the sixth Saturday following the beginning of General Registration.	60% of semester fees not chargeable to Special Services.[17]
Last refund period ending on the eighth Saturday following the beginning of General Registration.	40% of semester fees not chargeable to Special Services.[17]

The University Board of Governors has ordered that students called to the armed services of the United States be granted full refund of refundable fees, but no credit, if the call comes before the end of the first three-fourths of the term, and that full credit by courses be granted to men called to the armed services of the United States if the call comes thereafter; provided, however, that credit as described above will be granted only in those courses in which the student is maintaining a passing mark at the time of his departure for military service. In the recording of final grades, for three-fourths of a term or more, both passing and failing grades are to be shown on the student's permanent record card.

CLASSIFICATION OF STUDENTS

The following table shows the number of semester hours required for classification as second-year, third-year, and fourth-year students and for graduation, according to the curricula in the several colleges, schools, and divisions. First-year students must satisfy the requirements as set forth on pages 69-70.

COLLEGE AND DEGREE	HOURS REQUIRED TO CLASSIFY AS Second-Year Student	Third-Year Student	Fourth-Year Student	Required for Degree
AGRICULTURE, FORESTRY, AND HOME ECONOMICS				
B.S. (Bachelor of Science)	26	64	100	144
B.S. in Agriculture (B.S.Agr.)	26	64	100	144
B.S. in Forestry (B.S.F.)	30	70	110	150
B.S. in Wood Science (B.S.W.S.)	30	60	95	138
B.S. in Home Economics (B.S.H.E.)	25	58	92	128
AGRICULTURAL ENGINEERING				
B.S. in Agr'l Eng'g (B.S.Agr.E.)	30	72	112	148
ARTS AND SCIENCES*				
Associate in Arts (A.A.)	25	..	..	64
Bachelor of Arts (A.B.)				
Regular	25	58	92	128
Premedical	32	58	96	128
Combined (Dentistry)[18]	32	58	96	132
Combined (Medicine)[19]	32	58	96	132
BACHELOR OF SCIENCE (B.S.)				
Geology	32	58	99	132
Chemistry	34	69	103	136
Nursing Education	25	58	92	128
Physics	34	69	103	136
Social Work	25	58	92	128
Speech Correction	34	68	104	140
COMMERCE				
B.S. in Bus Ad. (B.S.Bus.)	..	58	92	128
B.S. in Economics (B.S.Ec.)	..	58	92	128
DENTISTRY				
Doctor of Dental Surgery (D.D.S.)	33	70	106	142
B.S. in Dental Hygiene (B.S.D.H.)	30	65	101	136
EDUCATION[20]				
B.S. in Elem. Educ. (B.S.E.Ed.)	..	58	92	128
B.S. in Secondary Educ. (B.S.Sec.Ed.)	..	58	92	128
ENGINEERING[21]				
Bachelor of Science	27	60	94	133
B.S. in Aero-Space Eng'g (B.S.A.E.)	30	72	112	148
B.S. in Chem. Eng'g (B.S.Ch.E.)	30	72	112	148
B.S. in Civil Eng'g (B.S.C.E.)	30	72	112	154
B.S. in Elec. Eng'g (B.S.E.E.)	30	72	112	148
B.S. in Ind. Eng'g (B.S.I.E.)	30	72	112	148
B.S. in Mech. Eng'g (B.S.M.E.)	30	72	112	148

*Unless otherwise stated, a minimum of 128 hours is required for all degrees awarded by the College of Arts and Sciences. This must include at least 124 hours exclusive of required Physical Education and required Military or Air Science.

[18]Fourth year in the School of Dentistry.
[19]Fourth year in the School of Medicine.
[20]For the Degrees of Bachelor of Science in Education, at least 10 hours of residence work must be in Education.
[21]Students matriculating with 58 or more hours of credit may graduate with 148 hours, since physical education is not required of these students.

COLLEGE AND DEGREE	HOURS REQUIRED TO CLASSIFY AS Second-Year Student	Third-Year Student	Fourth-Year Student	Required for Degree
JOURNALISM				
B.S. in Journalism (B.S.J.)	..	58	92	128
LAW				
Bachelor of Laws (LL.B.)	27	54	..	81
MEDICINE				
Doctor of Medicine (M.D.)	36	72	†	‡
B.S. in Medical Technology (B.S.Med.Tech.)	25	58	100	135
MINES				
B.S. in Eng'g of Mines (B.S.E.M.)	30	72	112	154
B.S. in Petroleum Eng'g (B.S.Pet.E.)	30	72	112	154
MUSIC				
Bachelor of Music (B.Mus.)	30	64	102	136
NURSING				
B.S. in Nursing (B.S.Nsg.)	30	64	96	To Be Determined
PHYSICAL AND HEALTH EDUCATION, RECREATION, AND SAFETY				
Bachelor of Science in Physical Education (B.S.P.E.)	28	58	92	128
Bachelor of Science in Recreation (B.S.Rec.)	28	58	94	130

†At least 3 quarters of clinical work.
‡At least 7 quarters of clinical work.

EXAMINATIONS AND REPORTS

Courses

As a rule courses extend through one semester only. In the College of Law, however, courses may extend either through the entire year or through one semester. No credit will be given for less than an entire course except by special order of the Committee on Scholarship. Grades given at the end of the first semester in courses extending throughout the year are merely indicative of the quality of work done by the student to that point and do not give credit for the part of the course so far completed. Such first-semester grades may be considered in determining the final grade, however.

Mid-Semester and Final Examinations

In practically all courses offered in the University, the student receives both a preliminary or mid-semester grade and a final grade. The mid-semester standing of a student is based on the daily recitation grades and a special test given during one or more regular recitation periods. Mid-semester grades are not entered on the Registrar's records. The final grade is based on the class standing for the entire semester and on a written final examination to which a special period of two or three hours is devoted.

Examination Periods

Mid-semester examinations are held during the week immediately preceding the day of the mid-semester reports as set forth in the University Calendar. Final examinations are held during the last week of each semester of the academic year, and during the last two days of each term of the Summer Session.

Absence From Examinations

Students are required to take all regular examinations. If a student attends a course throughout the semester and is absent from examination without permission, the instructor shall count the examination as zero and report the final grade as "F." If, in the opinion of the instructor, absence of the student was for satisfactory reason, the fact will be recorded on the student's class ticket, the grade "I" will be returned, and the student may, upon application to the instructor, take the examination at a later date.

Reports

Mid-semester grades are reported to students' advisers and to deans but are not recorded in the office of the Registrar.

Final grades are reported by instructors directly to the Registrar's office. Final grades must be in the hands of the Registrar within 48 hours after the closing hour of the examination. The rule also applies to the final grades of all students registered in other colleges or schools of the University who are enrolled in law courses.

The final standing of all seniors provisionally approved for graduation shall be reported by their instructors to the deans of their colleges or schools, and the final standing of all graduate students provisionally approved for graduation shall be reported to the Dean of the Graduate School. Special report cards are supplied by the Registrar.

A report of each student's work is made at the close of the semester or summer session to the student himself and to his parents or guardian.

Absences

Students shall attend all classes, including laboratory sessions, for which they are registered, unless prevented from doing so by illness, injury, authorized University activities, or other reasons approved by their deans. The student who is absent for any of the foregoing reasons is nevertheless responsible for the work missed.

SCHOLASTIC STANDING AND GRADE POINTS

Grading System

A—excellent (given only to students of superior ability and attainment)
B—good (given only to students who are well above average, but not in the highest group)
C—fair (average students)
D—poor but passing[22]
F—failure
I—incomplete
W—all withdrawals prior to the end of the second week following the date set for mid-semester reports
WP—withdrew passing subsequent to the end of the second week following the date set for mid-semester reports
WF—withdrew failing subsequent to the end of the second week following the date set for mid-semester reports
X—auditor, no grade and no credit

Grade Points

The grade-point average is computed on all work for which the student has registered, except for the courses with grades of "W" and "WP," and is based on the following grade-point values:

A	B	C	D[23]	F	WF	I	X
4	3	2	1	0	0	0	0

[22]Veterans of World War II or Korea may register for courses in which they have a grade of "C" or higher, but no credit will be given for the new listing.

Provided, however, that when a student receives a grade of "I" and later removes the incomplete grade, his average grade-point standing shall be calculated on the basis of the new grade.

If the final grade of a student in any course is "F," the student must take the course again if he desires to receive credit for it. The grade of "I" is given when an instructor believes that the course work is unavoidably incomplete or that a supplementary examination is justifiable. The grade of "I" can be removed within the following semester or the next semester in which the student is in residence, and becomes a failure unless special permission is granted by the appropriate Scholarship Committee to postpone removal.

Duties of Committee on Scholarship

The Committee on Scholarship shall have authority to proceed according to its best judgment in regard to delinquent students referred to it for consideration.

All orders of the committee shall become effective when approved by the dean of the college or school.

In the exercise of its authority the Committee shall not suspend a student during a semester except for wilful neglect and in cases where the student's class grades are so low that further class attendance would be a waste of time. No suspension shall become effective until approved by the dean of the college.

Duties of Instructors

Each instructor shall be responsible for keeping an attendance record of students in his classes and shall report an excessive number of absences to the student's dean and his adviser.

Duties of Advisers

Each student on entering the University is assigned to an adviser. It is the duty of advisers to assist students in preparing their schedules and to certify their study lists to the Registrar. The adviser is expected to give to students assigned to him such advice and sympathetic guidance as they may need in the pursuance of their work in the University. Students are expected to go freely to their advisers to discuss with them their problems.

All advisers, upon receipt of reports of excessive numbers of absences, shall have conferences with the students concerned and shall make such recommendations and adjustments as are desirable and feasible. If the adviser does not find a satisfactory solution after a conference with the student, he shall report the case to the dean of the college or school.

Probation and Suspension

Any student whose mid-semester grades are below passing in courses amounting to more than half of the total number of semester hours for which he is registered shall be placed on probation for the remainder of the semester. The terms of probation are determined by the respective scholarship committees.

Any student whose grades at the end of any registration period are below passing in courses amounting to more than half the total number of semester hours for which

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[23]Students unless enrolled in the School of Dentistry, College of Law, School of Medicine, School of Nursing, or School of Pharmacy, are permitted to re-register at West Virginia University for any courses for which a grade of "D" has has been received at West Virginia University while first-year students. (See pp. 87-89 for classification of students). In such cases the second grade shall supersede the first, providing it is not lower than "D." All work attempted after the first year shall be included in the computation of the grade-point average for degree purposes.

For teacher certification the student is responsible for every registration in a course for which a grade of A, B, C, D, F, WF, or I is received.

The University grade-point average is computed on all work attempted in all years.

he is registered shall be suspended from the University. A freshman, subject to the operation of this rule at the end of his first registration period in residence, shall be placed on probation for the succeeding registration period.

All actions of the Committee on Scholarship and of the dean or instructor of the college or school that affect the standing of a student shall be reported by the dean to the Registrar.

Regulations Affecting Degrees

Candidates for degrees are eligible for graduation upon completion of the requirements in the college or school in which they are registered which were in effect at the time of their first registration in that college or school, provided they apply for graduation within a period of seven years from the time of their first registration. Students who fail to complete the requirements for graduation within seven years from their first registration shall satisfy the requirements in effect at the time they apply for graduation.

The University Board of Governors has ordered that in view of public and professional responsibilities the faculty of each of the professional schools of West Virginia University shall have the authority to drop any student from its rolls whenever, by formal decision reduced to writing, the faculty finds that the student is unfitted to meet the qualifications and responsibilities of the profession.

All degrees are conferred by the Board of Governors upon recommendation of the faculties of the various colleges and schools. Degrees are granted at the close of the semester or summer session term in which the students complete their work.

Candidates for degrees to be conferred at the close of the second semester must be present in person to receive their degrees unless excused by the deans of their colleges and schools. No individual may be exempt from the provisions of this University regulation except by official action of the Board of Governors.

BACCALAUREATE DEGREES

Credits and Grade Points Required

Less than 6 hours in an ancient or modern language will not be counted toward any University degree, diploma, or certificate unless work in the same language has been offered for entrance.

Six hours of English composition and rhetoric (English 1 and 2) are required of all candidates for the Bachelor's Degree in all colleges and schools of the University.

Eight hours of basic military science or air science are required of all freshman and sophomore men not specifically exempt.

Two hours of physical education for men (P.E. 1 and 2), to be taken during the first year in residence, and four hours of physical education for women (P.E. 3-25, 101-102), to be taken during the first and second years in residence, are required for graduation, except in the case of students entering with advanced standing amounting to 58 semester hours or more.

Each undergraduate who is a candidate for an initial baccalaureate degree and who began college work after June 1, 1952, must pass a proficiency examination in English after the beginning of the junior year in order to qualify for graduation. (This examination, however, is not required of students of foreign countries whose native language is other than English.) He shall take the examination during the first semester of his junior year, and if not declared proficient, shall repeat the examination as many times as necessary. The examination shall be administered by the English Proficiency Board.

Each baccalaureate degree is conditioned upon the completion of a specified number of semester hours of credit. For a tabular statement of the number of credit hours required for each degree, see the last column on pages 88 and 89 under the heading "Classification of Students."

All divisions of the University require minimum standards of scholastic quality. Grade points are computed only on grades earned at West Virginia University (in-

cluding Potomac State College of West Virginia University). To be eligible for graduation, a student must have an average of "C" or an average of two grade points on all work for which he received grades (except "W" and "WP"). The College of Education, in addition to the general average of two grade points per credit hour in all subjects, requires an average of two grade points per hour of credit in Education and in each teaching field.

It is the student's responsibility to keep informed of his grade-point standing. This information may be obtained at any time from the dean of the college, school, or division in which the student is registered.

Graduation With Honors and With High Honors

Effective June 1, 1949, the University established the practice of awarding "Honors" and "High Honors" to qualified students who are candidates for the initial baccalaureate degrees. The following regulations govern these awards:

1. The computation of the average shall begin with the student's penultimate term or semester and continue in reverse chronological order until at least 48 semester hours have been counted. If, in order to total the required number of hours it is necessary to include any part of a semester or term, the work of the whole semester shall be included.

2. No graduate shall be eligible for honors unless he shall have completed at least half of the semester hours required for his degree in West Virginia University.

3. The senior year must be at the University.

4. No graduate shall be eligible for honors if his grade-point average for his final semester or term is less than 3.0.

5. Subject to the above conditions, all candidates for a baccalaureate degree whose average, as shown by the portion of the work used, is 3.6 or above, shall be graduated with "High Honors." All those whose average is less than 3.6 but 3.3 or above, shall be graduated with "Honors."

6. Fitting recognition of graduation with honors shall be made on the candidate's diploma and on the commencement program.

Requirements as to Residence

Students who come to the University from other colleges or universities are advised to make the transfer not later than the beginning of their third year and in no case will a student who matriculates in the University later than October 1 in any year be permitted to receive a degree at the next commencement.

In special cases students who desire to leave the University at the close of their third year to enter another institution with the purpose of taking a combined course leading to two degrees or of preparing for graduate study, upon application beforehand to the Committee on Scholarship of the college or school in which they are registered, may be permitted to do the work of the fourth year, or a part thereof, at such other institution and to receive the Bachelor's Degree from the University upon the presentation of the proper credits.

Except in the College of Law, no student will be granted a Bachelor's Degree by the University who has not done either a total of 90 hours or the last 30 hours of his work in actual residence at the University. No student may receive the Degree of Bachelor of Laws without at least three semesters in residence at the College of Law and the successful completion of courses aggregating at least one-half of the total number of hours required for graduation. Except with the permission of the Scholarship Committee, the last 27 hours of work must be taken in the College of Law of West Virginia University.

Maximum and Minimum Work

The maximum and minimum number of hours per semester as well as the maximum number of hours per year for which a student may register during the regular academic year of the University are as follows:

	Minimum Hours Per Semester	*Maximum Hours Per Semester*	*Year*
Agriculture	14	20	..
Arts and Sciences	14	18	..
Commerce	14	18	..
Dentistry	16	22	..
Education	..	18	36
Engineering	14	20	..
Forestry	14	20	..
Home Economics	14	18	34
Journalism	14	18	36
Law	13	16	..
Medicine	17	20	..
Mines	12	20	..
Music	14	20	..
Nursing	14	20	..
Pharmacy	14	20	..
Physical and Health Education, Recreation, and Safety	14	20	..

Work of the Summer Session is equivalent in character to that of the regular year. One hour's credit per week is a normal load for either term; but in order to facilitate scheduling of courses, undergraduate students may carry 7 hours if the periods are seventy-five minutes in length.

A student desiring to do irregular work, more or less than the prescribed number of hours in any college, must obtain permission from the Committee on Scholarship in his college or school. This permission is not valid until it has been reported to the Registrar for record.

Work Done Out of Residence

It is the policy of the University to discourage the taking of regular residence courses in absentia. In the case of courses begun at the University and not completed because of illness or for other acceptable reasons, however, permission to complete the work in absentia under the direction of the regular University instructors may be granted by the Committee on Scholarship; but in such case credit should be given only upon a report of the grade of no less than "C" on final examination.

This regulation does not apply to University extension courses.

Credit for Correspondence Work

Credit up to a maximum of 30 semester hours for work completed by correspondence in non-laboratory courses will be accepted by the University when such work is given by accredited colleges or universities that accept this work for credit toward their own degrees and whose residence work is accepted by West Virginia University.

College Credit Defined

A college credit or semester hour represents the amount of work done in one semester in one recitation hour with two preparation hours a week. From two to three hours of laboratory work are considered equivalent to one hour of recitation, according to the amount of outside work assigned in connection with the laboratory hours.

Substitution for Required Courses

A student who desires to substitute another course for any course prescribed in his curriculum or required for the degree toward which he is working must obtain permission for such substitution from the Committee on Scholarship in his college or school, but there can be no substitution from group to group.

WITHDRAWAL FROM THE UNIVERSITY

A student who desires to withdraw from the University must obtain a withdrawal card from the office of the Registrar, 205 Administration Building. Withdrawal procedure will be explained to him when he obtains this card.

Students who withdraw from the University without permission will receive at the end of the semester a grade of "F" (failure) in each of the courses for which they are registered and will be indefinitely suspended from the University.

Students who desire to drop part of their work may withdraw from classes in which they are enrolled with a grade of "W" at any time prior to the end of the second week following the date set for mid-semester reports. Withdrawal permits must be approved by the adviser and accepted by the Registrar. If such withdrawal reduces the student's hours below the required minimum, the permit must be approved by the Scholarship Committee. Withdrawals after the above date will be permitted only in exceptional cases and must be approved by the Scholarship Committee of the college or school in which the student is registered.

Students must present a signed statement from the Librarian that they have returned all books and paid all library fines before they will be allowed to withdraw.

Re-Entry After Withdrawal

Students required to withdraw from one college or school of the University because of failure in their work and permitted to transfer to another unit of the University may not again register in the college or school in which they were originally registered without the consent of the Scholarship Committee of that college or school.

Part III

CURRICULA AND COURSES

ABBREVIATIONS

The following abbreviations are used in the descriptions of courses:

I—a course given in the first semester.
II—a course given in the second semester.
I, II—a course given in each semester.
I and II—a course given throughout the year.
S—a course given in the Summer Session.
SI—a course given in the first term of the Summer Session.
SII—a course given in the second term of the Summer Session.
hr.—number of credit hours per course.
consent—consent of instructor required.
PR:—prerequisite.

PLAN FOR NUMBERING COURSES

For convenience each course of study is designated by the name of the department in which it is given and by the number of that course. The plan for numbering is as follows:

Courses 1 to 99—courses intended primarily for freshmen and sophomores.
Courses 100 to 199—courses intended primarily for juniors and seniors.
Courses 200 to 299—advanced courses for juniors, seniors, and graduates.
Courses 300 to 399—courses open to graduate students only.

SEMESTER COURSE SCHEDULES

Before the opening of each semester, a schedule is printed announcing the courses that will be offered in the College of Agriculture, Forestry, and Home Economics; the College of Arts and Sciences; the College of Commerce; the School of Dentistry; the College of Education; the School of Journalism; the School of Medicine; the Division of Military Science and Air Science; the School of Music; the School of Nursing, the School of Pharmacy, and the School of Physical and Health Education, Recreation, and Safety.

Schedules are prepared for the College of Engineering, the School of Mines, and the College of Law, but are not printed.

The College of Agriculture, Forestry, and Home Economics

ORGANIZATION

Agriculture, forestry, and home economics work at West Virginia University is organized under the College of Agriculture, Forestry, and Home Economics. For the purpose of administration the College is divided into five branches:

I. Resident instruction in agriculture.
II. Resident instruction in forestry.
III. Resident instruction in home economics.
IV. The Agricultural Experiment Station, organized for research and experimental work in agriculture, forestry, and home economics.
V. Cooperative Extension work in agriculture, forestry, home economics and boys' and girls' club work for citizens of the State who are not in residence at the college.

The work of these divisions is closely interrelated. Although some members of the staff devote full time to college instruction, research or extension work, many others divide their time between two or three of the divisions.

OBJECTIVES

To provide an academic setting of excellence in which a young man or woman may attain his or her higher education goals.

To provide a selection of courses through various options for organizing different programs of study leading to proficiency in many professional fields directly in and related to agriculture, forestry, and home economics.

To provide advanced training courses leading to degrees at master's and doctoral levels.

To carry out a research program in fields and problem areas of pertinence to West Virginia.

To conduct an off-campus informal educational program disseminating to West Virginia families up-to-date information on subjects related to agriculture, forestry, and home economics.

HISTORY AND FACILITIES

In 1895 the College of Agriculture was established as a distinct college in the University. The Agricultural Experiment Station, founded in 1888, became part of the College at the time the latter was instituted. The Cooperative Extension Service was added in 1913, and in 1914 the Department of Home Economics was transferred from the College of Arts and Sciences. Organization of the College was completed in 1937 when a full four-year course in forestry was added. The name of the unit then was changed to "The College of Agriculture, Forestry, and Home Economics."

The Experiment Station was established by the Board of Regents in 1888 by authority of an Act of Congress known as the Hatch Act. Further support was given by Acts of Congress known as the Adams Act, the Purnell Act, and Bankhead-Jones Act, the Research and Marketing Act of 1946, and the Hatch Act as amended in 1955.

The Cooperative Extension Service was established by Act of the Legislature in 1913, amended in 1915, to cooperate with the Federal Government in carrying out the provisions of the Smith-Lever Act of May 8, 1914, and as amended again in 1953 and in 1955. Cooperative Extension work is further supported by the Agricultural Marketing Act of 1946 and the Charles-McNary Act of 1924, amended October 26, 1949.

The basis on which Cooperative Extension work is conducted is the Memorandum of Understanding between West Virginia University and the United States Department of Agriculture. The Memorandum in its present form was revised in 1954.

The College now has 900 acres of land for farming lying at a short distance from the University campus. This land is divided into five farms. Each of the farms is equipped with modern farm buildings and with special buildings for classroom, experimental, and laboratory work. A 40-acre woodlot is used for instruction and experimentation in forestry.

At Alvon, in Greenbrier County, the Division of Forestry maintains Camp Arthur Wood, devoted to field instruction and land surveying and timber estimating for students in the division who have passed two years of the professional forestry course. Camp Arthur Wood, situated in the Monongahela National Forest, is equipped with permanent buildings for instruction and living accommodations.

The Division of Forestry also has 498 acres of forest land in Randolph County which is being used for research and educational training. In addition to this work, the tract is used by extension foresters to demonstrate sustained yield and forest operation for the production of hardwood timber.

During 1951 an agreement was completed between the University and the Island Creek Coal Company making the 3,000-acre Island Creek Experimental Forest available for research in applied forestry. The experimental work conducted here is open to inspection by forestry students.

Cooper's Rock State Forest, an area of 13,000 acres fronting on Cheat Lake, is less than ten miles from the University. By agreement between the University and the Conservation Commission of West Virginia, an 8,000-acre part of this forest has been set aside as the West Virginia University Forest, Division of the Cooper's Rock State Forest. This area is managed by the Division of Forestry for research and educational purposes.

Branch experiment stations are maintained at Wardensville, Point Pleasant, Kearneysville, and Reedsville. The Reymann Memorial Experimental Farms at Wardensville was established in 1917. It occupies 987.5 acres of farm land on the Cacapon River in Hardy County. The farm is being operated on an experimental basis involving pasture improvement, erosion control, soil rebuilding, water conservation, irrigation, crops, beef cattle, sheep, and poultry.

The Ohio Valley Experiment Farm of 150 acres at Point Pleasant on the Ohio River was acquired in 1948. It is operated as a unit for the experimental work in tobacco and truck and field crops of special interest to the farmers of the Ohio and Kanawha valleys.

The University Experiment Farm, a tract of 158 acres near Kearneysville in the eastern section, was established in 1930 as a branch experiment station for the study of problems relating to fruit production, including insect and disease control, as well as problems of general farming typical of the section.

The Reedsville Experiment Farm in Preston County was acquired in 1944. Work on this 475-acre farm consists of programs with potatoes, ornamentals, small fruits, corn and legumes in rotations, livestock, and agricultural engineering.

The Cooperative Extension Service is organized for the purpose of disseminating up-to-date and practical information to West Virginia families in the subjects of Agriculture, Forestry, and Home Economics. Its work is carried out through the County Extension offices of which there is one in each of the 55 counties in West Virginia. Twenty-five subject-matter specialists stationed on the campus make available their technical services to the people of the State through the County Extension offices.

A Home Management House and a Nursery School are located close to Oglebay Hall.

Bulletins, circulars, and pamphlets setting forth the results of experiments, investigations and recommendations are published for free distribution and may be obtained from the County Extension Agent in each county.

With its farm land, buildings, and equipment the College of Agriculture, Forestry, and Home Economics offers thorough and complete training in most branches of agriculture, forestry, and home economics that is applicable to West Virginia conditions.

In the past year arrangements were completed with the U. S. Agency for International Development to assist in planning the layout and buildings for a two-year agricultural college in Tanganyika. In addition, a student training program is being conducted on campus at the University. Arrangements were also completed for providing certain staff members to assist with the agriculture program at Egerton College in Kenya.

HEADQUARTERS FOR COLLEGE DIVISIONS

The Dean of the College, the Director of Resident Instruction for Agriculture, the Director of the Agricultural Experiment Station, and the Director of the Cooperative Extension Service are all located in the Agricultural Sciences Building on the Evansdale Campus. The Director of the Division of Forestry is located in the Forestry Building on the Main Campus. The Director of the Division of Home Economics is located in Oglebay Hall on the Main Campus.

Graduate Work

Graduate work leading to the Master of Science Degree is offered in all branches of Agriculture, Forestry, and Home Economics. Courses leading to the degree of Doctor of Philosophy are offered in the departments of Plant Pathology, Bacteriology, and Entomology, Agronomy and Genetics, and Agricultural Biochemistry.

For those students in agriculture and home economics who wish additional training beyond the baccalaureate degree, but who desire breadth of training rather than specialization in one subject-matter field, the degrees of Master of Agriculture and Master of Home Economics are available.

Teachers of vocational agriculture may combine graduate work in Agriculture and Education by taking 16 to 20 hours in Agriculture and 10 to 14 hours in Education to fulfill requirements for the M.S. Degree.

The degree of Master of Science in Extension Education is an interdepartmental program designed especially for those who require an understanding of the social behavioral sciences involved in successfully communicating their technical knowledge to people. Candidates for the program must hold a bachelor's degree in an appropriate field of study from an accredited institution, and meet all general requirements for admission to the Graduate School. The satisfactory completion of at least two years' experience in Extension or related work is desirable. The curriculum for this program is drawn from administration, education, journalism, psychology, sociology, and speech.

The student who plans to pursue graduate work should consult the Graduate School *Announcements*.

Advancement in any of the professional fields is dependent upon graduate study, and the student desiring to pursue such work should plan to continue in graduate study upon completion of the undergraduate curriculum. A limited number of graduate assistantships which permit half-time devotion to study are available in the Division of Agriculture and the Agricultural Experiment Station.

The Division of Agriculture

The Division of Agriculture offers courses of study to prepare the student for the business, education, basic and applied science, and engineering opportunities in agriculture. The agriculture industry needs engineers, scientists, teachers, managers, consultants, county agents, and conservationists, as well as farmers. A farm background is desirable for students majoring in agricultural education and applied agricultural science.

Degrees Granted in Agriculture

The Division of Agriculture offers programs of study leading to the following degrees:

1. Bachelor of Science (B.S.).
2. Bachelor of Science in Agriculture (B.S.Agr.).
3. Bachelor of Science in Agricultural Engineering (B.S.Agr.E.).

Degree Requirements

The requirements for the degree of Bachelor of Science and the degree of Bachelor of Science in Agriculture are:

1. Courses listed in the Foundation Curriculum must be completed with passing grades (for freshmen enrolling September, 1961, and beyond). Students enrolled in the Agricultural Engineering curriculum are exempt from Agriculture 11 and 12.
2. Additional courses must be taken to satisfy the requirements of the chosen Agriculture curriculum option.
3. A grade-point average of not less than 2.000.
4. All students must pass the English Proficiency Examination.

CURRICULUM IN AGRICULTURE

(EFFECTIVE SEPTEMBER, 1961)

Students enrolling as freshmen in the Division of Agriculture after September 1961 are governed by the Requirements for Degrees as specified in the new curriculum for agriculture beginning on page 102.

The new curriculum options for Applied Science, Basic Science, Business, and Education consist of two parts:

1. A series of Foundation Courses common to the curriculum options.
2. Additional requirements to each curriculum in one of the four agriculture options: Applied Science, Basic Science, Business, and Education.

Selection of Options

Students entering the Division of Agriculture as freshmen after September 1, 1961 must select one of the following options before registering for their third semester:

1. Applied Science.
2. Basic Science.
3. Business.
4. Education.
5. Engineering.

Transfer students must make their selection prior to their second registration in the Division of Agriculture.

Students selecting Applied Science, Business, or Education options will receive the Degree of Bachelor of Science in Agriculture as evidence of satisfactory completion of the requirements of the curriculum. Fulfillment of the requirements of the Basic Science option leads to the Degree of Bachelor of Science; that of Engineering to the Degree of Bachelor of Science in Agricultural Engineering.

Pre-Veterinary students working to meet the requirements for entrance into veterinary school may do so within the framework of either the Applied or Basic Science options.

Student Advisers

Entering students will be assigned an adviser by the Director of Resident Instruction. Changes in advisers may be initiated by either the student or the adviser; however, such changes must have prior approval of the new adviser and the Director of Resident Instruction.

AGRICULTURE CURRICULUM OPTIONS

Applied Science Option

The Applied Science option, leading to the degree of Bachelor of Science in Agriculture, is designed for students who desire maximum specialization in the broad field of agriculture. The requirement of 30 hours of Agriculture, in addition to those in the Foundation Curriculum and the provision for 16 hours of free electives, will present an opportunity for specialization of broad general training in agriculture. The requirement of mathematics, statistics, biological science, and physical science will insure that this specialization will be accompanied by the basic knowledge necessary for agricultural specialization.

Basic Science Option

The Basic Science option, leading to the degree of Bachelor of Science, is designed for students who are interested in teaching agricultural science and especially for those interested in research. Although this option provides the least amount of specialization in technical agriculture, it provides a wide latitude in associated areas. A student must complete mathematics through analytical geometry, and chemistry through organic chemistry. This option provides the opportunity to develop a degree of specialization in either physiology, microbiology, soil chemistry, biochemistry, pathology, and genetics, or to develop the basic sciences through physical chemistry and calculus. Additional requirements of language, humanities, and social science encourage the cultural development of the student.

Business Option

The Business option, leading to the degree of Bachelor of Science in Agriculture, is designed for students who may wish to enter areas of management, sales, and operation of agricultural and/or related enterprises. The Business option will provide sufficient variety in agriculture courses and a depth of training in one area. In addition, it provides a minimum of 30 hours of business, economics, and allied subjects that will enable a student to progress rapidly in the business aspects of his vocation.

Education Option

The Education option, leading to the degree of Bachelor of Science in Agriculture, is designed to prepare students to teach in West Virginia high schools. It satisfies the West Virginia State Board requirements and those of the College of Agriculture, Forestry, and Home Economics. A program is provided to train the students in the

basic and applied sciences and to prepare them for a teaching career in the field of vocational agriculture. It also includes provisions for the teaching of biological science as a second field.

THE FOUNDATION CURRICULUM

(*Required In All Options*)

	Hr.
Introduction to Agriculture	
Agriculture 11—Professions in Agriculture	1
Agriculture 12—Professions in Agriculture	1
Agricultural Science	
Animal Industry and Veterinary Science 51—Principles of Animal Science	4
Agriculture 52—Principles of Plant Science	4
Agronomy 2—Principles of Soil Science	3
Agricultural Engineering 10—Principles of Agricultural Engineering	3
Economics	
Economics 1—Principles of Economics	3
Agricultural Economics 103—Agricultural Economics	3
Communication Skills	
English 1—Composition and Rhetoric	3
English 2—Composition and Rhetoric	3
Speech 11—Public Speaking	3
Physical Science and Mathematics	
Chemistry 1—Inorganic Chemistry	4
Chemistry 2—Inorganic Chemistry	4
Physics 1—Introductory Physics	4
Physics 2—Introductory Physics	4
Mathematics 3—College Algebra	3
Mathematics 4—Trigonometry	3
Biological Science	
Botany 1—General Botany	4
Zoology 2—General Zoology	4
TOTAL	61

All courses listed in the Foundation Curriculum are required of all students and should be completed with a passing grade before reaching the fourth-year status of 100 hours. Courses within this category not completed before the student attains year status still must be passed but the hours will not then count toward the total needed for graduation. Exceptional cases will be handled by the Dean.

AGRICULTURAL ENGINEERING

See page 105 for details concerning the Agricultural Engineering curriculum.

ADDITIONAL REQUIREMENTS TO THE FOUNDATION CURRICULUM
(Hours Required By Options In Agriculture)

SUBJECT MATTER AREA	APPLIED SCIENCE	BASIC SCIENCE	BUSINESS	EDUCATION	COURSES FOR SELECTION*
Communications	3	3	3	3	From advanced courses in written and spoken English, Literature, and Journalism
Humanities and Social Sciences	9	6	9	13	Humanities, Music, Art, Philosophy, Logic, Sociology (including Rural Sociology), Political Science, History, Psychology, Social Science, and Geography
Biological Sciences	8	10	0	4	Either Botany 2 or Zoology 1, additional hours from Physiology or Pathology (animal or plant), Biochemistry, Bacteriology, Genetics, Entomology, Mycology, Botany, or Zoology
Mathematics	0	4	0	0	Mathematics 5
Physical Science and Mathematics	4	12**	0	0	Mathematics, Chemistry, Physics, Geology, Surveying
Statistics	3	0	3	3	Statistics 101, or other
Accounting	0	0	4	0	
Business and Economics	0	0	12	0	A minimum of 9 hr. in the College of Commerce. The remaining 3 hr. from either Commerce or Agricultural Economics
Agriculture	30	20	30	31	Courses in the College of Agriculture, Forestry, and Home Economics. Business majors must have a minimum of 9 hr. of Agricultural Economics
Education and Agricultural Education	0	0	0	21	Minimum hours required for Teacher Certification in Vocational Agriculture
Foreign Language	0	6	0	0	
Physical Education, Military or Air Science, or Free Electives	10	10	10	10	
Free Electives	16	12	12	0	
TOTAL	83	83	83	85	

*Courses submitted to meet the requirement in one subject-matter area cannot be used to satisfy requirements in another subject-matter area.

**Chem. 233, Organic Chemistry, is required in the Basic Science Option.

NOTE: A student may pursue a curriculum option within a subject-matter area or a general course of study within each of the four curriculum options

AGRICULTURE CURRICULUM

FRESHMAN YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
*Agr. 11	1	*Agr. 12	1
*English 1	3	*English 2	3
*Bot. 1	4	*Zool. 2	4
*Chem. 1 *or*		*Math. 4	3
Zool. 1†	4	*Chem. 2 *or*	
*Math. 3	3	Chem. 1	4
Phys. Ed. 1	1	Phys. Ed. 2	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	18		18

SOPHOMORE YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
*Econ. 1	3	*Agr. Econ. 103	3
*Chem. 2 *or*		*Agron. 2	3
Zool. 1†	4	*Agr. 52	4
*Agr. Eng. 10	3	Elective (Communications) *or*	
*AI & VS 51	4	Bot. 2†	3 or 4
*Speech 11	3	Elective (Humanities and	
Mil. or Air Sci. 3	2	Social Sciences)	3
		Mil. or Air Sci. 4	2
	19		18 or 19

JUNIOR YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
*Physics 1	4	*Physics 2	4

*Courses marked with an asterisk are required for all students in Agriculture, and they should be completed satisfactorily before reaching fourth-year status of 100 hours. Courses within this category not completed before the student attains fourth-year status still must be satisfactorily completed but the hours will not then count towards the total needed for graduation. Exceptional cases will be handled by the Dean.

†Students in the Applied Science, Basic Science, and Education options will select Bot. 2 or Zool. 1 during their first two years. Not required for the Business Option. Business majors may elect a course in Humanities and Social Sciences.

NOTE: It may be necessary for some students to take English 0 and Math. 2. Such changes in the curriculum schedule may be made with only slight reorganization.

In addition to the curriculum schedule, the student in his junior year must take additional courses in various subject-matter areas to qualify for the Bachelor's Degree in one of four options in Agriculture.

VETERINARY MEDICINE

Admission Requirements Leading to a Career in Veterinary Medicine

West Virginia University has an agreement with Oklahoma State and Ohio State Universities' Colleges of Veterinary Medicine. Each of these Universities each year will accept up to four students who have satisfactorily completed their pre-veterinary requirements listed below.

Applicants for admission to these Colleges of Veterinary Medicine must present not less than 60 semester hours of acceptable credit from a recognized college or university. Hours earned in military or air science or physical education or survey courses are not counted. Most students find it advantageous to complete the require-

ments for both schools; therefore, the number of hours required is greater and must be distributed as follows:

	Hr.
Chemistry—including Inorganic, Organic, and Biochemistry	15
Biological Science—Zoology and Botany	12
Physics and/or Mathematics	8
English	6
Animal Science including Nutrition	7
Genetics	3
Humanities and Social Studies*	15
	66

*Oklahoma State requires 3 hours American History and 3 hours Political Science.

AGRICULTURAL ENGINEERING

Degree: Bachelor of Science in Agricultural Engineering

Agricultural Engineering is the application of engineering principles to agriculture. Success in the application of these engineering fundamentals to the agricultural industry requires knowledge of both biological and physical sciences. The purpose of the course is to give the student who completes it general training in agriculture and in engineering fundamentals. Considerable stress is given to the basic requirements of animal and plant life on the farm which affect engineering practices, but greater emphasis is made on a thorough knowledge of those underlying principles and methods which are the foundation of all engineering professions.

Although the curriculum gives no opportunity for specialization, Agricultural Engineering is made up of four major fields. These are Farm Power and Machinery, Farm Structures, Soil and Water Conservation, and Electric Power and Processing.

Students preparing to take Agricultural Engineering should present for entrance as many units as possible in mathematics, chemistry, and physics.

Some of the organizations and industries employing agricultural engineers are electric power companies and co-operatives; farm machinery manufacturers and distributors; manufacturers and distributors of building materials; oil companies; electric equipment and other suppliers for farm utilities; trust companies; farm management agencies; federal agencies such as Soil Conservation Service, U. S. Department of Agriculture, Federal Land Bank, and Indian Service; colleges and universities; Army and Navy, and foreign governments.

Opportunities for employment are numerous. At no time since the establishment of the profession has it been crowded, and the outlook is good for a continuance of this situation. With agriculture becoming increasingly mechanized, the demand for agricultural engineers is increasing and should continue to increase. New opportunities arise as mechanization continues. Starting salaries are in line with salaries in other branches of engineering.

CURRICULUM IN AGRICULTURAL ENGINEERING

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Chem. 1	4	Chem. 2	4
Math. 15	4	Math. 116	4
M.E. 20	3	Physics 11	4
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed. 1	1	Phys. Ed. 2	1
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ag.Eng. 10	3	Physics 124	4
Physics 102	4	Math. 253	3
Math. 117	4	T.A.M. 102	3
T.A.M. 101	3	Econ. 2	3
Econ. 1	3	M.E. 121	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	19		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 26	2	C.E. 115	3
E.E. 105	4	E.E. 205	4
T.A.M. 103	3	C.E. 1	2
T.A.M. 104	3	M.E. 109	2
Humanities 1	4	Humanities 2	4
Agron. 2	3	AI & VS 51 *or* Agr. Sci. 52	4
	19		19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ag.Eng. 140	3	Ag.Eng. 100	3
Ag.Eng. 230	3	Ag.Eng. 110	3
M.E. 201	3	Ag.Eng. 190	3
English 126 *or* Speech 11	3	Rural Sociol. 105	3
Agr. Econ. Electives*	3-2	Electives	6
Electives	3-4		
	18		18

*Agricultural Economics electives must be chosen from Agr. Econ. 240, 261, or 271.

COURSES OF INSTRUCTION IN AGRICULTURE

Only the technical courses offered primarily for students in Agriculture are described here. For detailed description of other courses listed as required or elective in the agricultural curriculum, see the announcement of courses in the College of Arts and Sciences or in other colleges.

Admission to any advanced elective course is conditional upon the consent of the instructor.

ASSIGNED TOPICS

In order to be eligible to take courses 180, 181, Assigned Topics, the student must:

1. Have completed 100 hours of work and have a grade-point average of 2.5 or above.

2. Present, in advance, a written outline of the work to be done as an assigned topic. This outline must be acceptable to the Dean of the College and the department chairman concerned.

Item 1 above does not apply to special students.

A student may not receive credit toward graduation for more than 4 hours of Assigned Topics.

AGRICULTURE

Assistant Dean Burger; Professors Dunbar and Welch; Assistant Professors Ulrich and Watts; Staff.

AGRICULTURE

Undergraduate Division

11. Professions in Agriculture. I. 1 hr. Survey of the subject-matter disciplines and of the career opportunities available to students in the Division of Agriculture. Included ordinarily is a trip to an outstanding agribusiness area.

12. Professions in Agriculture. II. 1 hr. Continuation of Agr. 11. Included ordinarily is a trip to demonstrate good farm management.

51. Principles of Animal Science. I. 4 hr. A comparative study of the production of meat, milk, eggs, and wool. Nutrition, physiology, genetics, hygiene, physical environment, and economics are discussed as bases for sound managerial decisions.

52. Principles of Plant Science. II. 4 hr. PR: Bot. 1. A basic course covering the nature, history, classification, role, distribution, structure and function, reproduction, improvement, culture, pests, storage and handling, production and marketing, and utilization of agricultural plants.

Graduate Division

360. Problem Report for the Degree of Master of Agriculture. I, II, S. 1-3 hr.

STATISTICS

Undergraduate Division

101. Statistical Concepts. II. 3 hr. An elementary course designed to thoroughly familiarize the student with the basic concepts of the distribution of a variable, sampling error, probability, and statistical inference. This course emphasizes the bases for statistical reasoning rather than the mechanics of a number of statistical techniques.

211. Statistical Methods. I. 3 hr. Statistical concepts and methods applied to data in biological and other fields. Measures of centrality and dispersion; normal distribution; population and sampling; estimation and tests of hypotheses concerning means and variances, analysis of variance, regression and correlation; enumeration statistics.

212. Advanced Statistical Methods. II. 3 hr. PR: Statistics 211 or equiv. Continuation of Statistics 211. Statistical concepts and methods. Analysis of variance with two or more variables; factorial comparisons; covariance analysis; multiple regression and correlation; and nonlinear regression.

Graduate Division

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. PR: Consent. Advanced study in such topics as analysis of non-orthogonal data, estimation of variance and covariance components, transformations for anormality of distribution, efficiency of experiments, and non-parametric methods of estimation.

AGRICULTURAL BIOCHEMISTRY

Professor Patrick; Associate Professor Luchsinger; Instructor Martin.

Chemistry and biochemistry courses are also offered in the College of Arts and Sciences and the School of Medicine.

Undergraduate Division

101. Introductory Plant and Animal Biochemistry. II. 3 hr. PR: Chem. 1 and 2, Chem. 31 or 131 or equiv. An introductory course of the biochemistry of carbohydrates, proteins, lipids, vitamins, enzymes, minerals, and horomones of plants and animals.

103. Introductory Biochemistry Lab. II. 1 hr. Experiments to demonstrate certain phases of the subject matter covered in Agr. Biochem. 101.

180, 181. Assigned Topics. I, II. 1-4 hr. per sem.

202. Introductory Biochemistry. II. 3 hr. PR: General chemistry, organic chemistry. Open to Education majors and Master of Agriculture candidates only.

212. Principles of Biological Radionuclide Science. SI. 3 hr. This course is designed for high school science teachers and deals with the handling and usage of radionuclides in research, both for peaceful and wartime uses.

214. Biological Radionuclide Methods. I, II. 3 hr. PR: Chem. 1, 2, 131, or consent. Using the chick and radionuclides as applied to chick biological methods. Radionuclide methods and isotope handling as needed by students interested in research.

290. General Biochemistry. I. 3 hr. PR: Chem. 238, quantitative analysis and consent. A general course in biochemistry primarily intended to meet the needs of graduate students.

291. General Biochemistry. II. 3 hr. PR: Agr. Biochem. 290 or consent. A continuation of Agr. Biochem. 290.

293. Laboratory Experiments in Biochemistry. I. 2 hr. PR or conc: Agr. Biochem. 290. Experiments to demonstrate certain phases of the subject matter covered in General Biochemistry.

Graduate Division

301. Enzymes. I. 3 hr. PR: Agr. Biochem. 290 or consent. A general survey of the chemistry of enzymes for the advanced student. Offered in 1965-66 and every third year.

303. Biochemistry of Carbohydrates. I. 2 hr. PR: Agr. Biochem. 291. The structure, properties and metabolism of sugars and polysaccharides. Offered in 1963-64 and every third year.

305. Biochemistry of the Lipids. II. 2 hr. PR: Agr. Biochem. 290 or consent. A consideration of the composition, analysis, processing, and metabolism of fats and other lipids. For advanced students. Offered in 1964-65 and every third year.

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. Advanced training will be provided, through literature surveys and special research projects, in such areas as biochemical techniques, animal nutrition and metabolism.

325. Advanced Biochemistry Laboratory. I. 2 hr. PR: Agr. Biochem. 290 or concurrent registration. Methods and techniques in the study of proteins and related subjects, including principles of fractionation, electrophoresis, ion exchange, lyophilization, microbiological analysis, and other applicable techniques. Offered in 1963-64 and alternate years.

326. Advanced Biochemistry Laboratory. II. 2 hr. PR: Agr. Biochem. 290. Special techniques used in the study of lipids, enzymes, and carbohydrates, such as distillation at low pressure, low temperature fractional crystallization, counter current distribution, purification of enzymes, kinetic studies, and glass blowing. Offered in 1963-64 and alternate years.

330. Mineral Metabolism. II. 3 hr. PR: Chem. 1, 2, 31; Biochem. 290-291, or consent. The inorganic and biochemistry of the minerals in the body and the physiological function of minerals are studied. A special term paper is required of each student on the mineral metabolism studies.

NOTE: Students assigned to a 200 course for graduate credit will be required to prepare a semester paper on some special phase of the course in addition to the regular course work.

AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

Professors Evans, Armentrout, Clarke, and Toben; Associate Professors Barr and Sizer.

AGRICULTURAL ECONOMICS

Undergraduate Division

103. Agricultural Economics. I and II. 3 hr. PR: Econ. 1. Application of economic principles to agriculture and agri-business firms. Agriculture's place in the state and national economies and its position in the international sphere. Credit is not given for both Agr. Econ. 103 and Econ. 2. Agr. Econ. 103 is prerequisite for upper-division courses in Agricultural Economics and the College of Commerce.

104. Farm Management. I. 3 hr. PR: Agr. Econ 102 or 103. Types and systems of farming; considerations in starting farming; use of records in solving farm problems; land tenure and leases; production for family use.

110. Agri-business Accounting. I. 4 hr. Accounting for business managers who do not intend to become accountants. A brief coverage of terminology and methodology; decisions in accounting as directed by executives; interpretations and values from accounts and accounting statements. Visits to business firms required.

131. Marketing Agricultural Products. II. 3 hr. PR: Agr. Econ. 102 or 103. Market organization, market policies and practices and factors affecting the marketing of agricultural products. Tour, etc.

180, 181. Assigned Topics. I and II. 1-4 hr. per sem.

200. Land Economics. II. 3 hr. Classification, development, tenure, use, conservation, valuation and taxation of rural, urban, mineral, forest, water, and recreational land resources.

206. Farm Planning. I. 3 hr. PR: Senior standing. Principal factors influencing returns on farms; planning use of labor, soil, crops, livestock, buildings and equipment. Farm visits required.

230. Cooperative Marketing. II. 2-3 hr. PR: Agr. Econ. 102 or 103. Principles and practices of cooperation as applied to marketing of agricultural products and purchasing of farm supplies. Offered in 1963-64 and alternate years.

235. Marketing Dairy Products. II. 2 hr. PR: Agr. Econ. 102 or 103. Milk-marketing policies and practices, including federal milk-market orders. Offered in 1964-65 and alternate years.

240. Agricultural Prices. II. 3 hr. An analysis of the price-making forces which operate in the market places for the major agricultural commodities.

261. Agri-business Finance. I. 3 hr. Credit needs of agricultural businesses; financing of farm and market-agency firms; and organization and operation of credit agencies which finance agricultural business firms.

271. Agricultural Policy. II. 2 hr. An examination of the economic aspects of government price programs, production and marketing controls, subsidies, parity, export and import policies, and other programs affecting agriculture. Offered in 1964-65 and alternate years.

Graduate Division

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

340. Advanced Farm Management. I. 3 hr. PR: Agr. Econ. 206.

341. Production Economics. I. 3 hr. Economic principles of production with special application to agriculture.

342. Advanced Agricultural Economics. II. 3 hr.

380, 381, 382, 383. Research. I and II. 1-6 hr. per sem.

RURAL SOCIOLOGY

Undergraduate Division

105. Sociology of Rural Life. II. 3 hr. Social aspects of rural living; characteristics of rural population, social structure, and institutional arrangements (family, community, education, religion, recreation, health, welfare, and local government).

224. Family and the Individual in the Community. I. 3 hr. PR: One course in the family, or Sociology, or consent. Social psychological analysis of the individual in the family and in other social systems. Involves the study of role relationships, community processes and attitudes and values as they affect the behavior of the individual.

Graduate Division

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

380, 381, 382, 383. Research. I and II. 1-6 hr. per sem.

AGRICULTURAL EDUCATION

Professor Butler; Associate Professor Harvey (Extension Education); Assistant Professors Kelly and McGhee.

Undergraduate Division

118. Organizations and Clubs for Farm Boys. II. 2 hr. Problems involved in directing the activities of FFA and similar organizations.

134. Methods of Cooperative Extension. I. 2 hr. Activities of county cooperative extension agents and of the cooperative extension programs in West Virginia.

138. Extension Education Methods. II. 2 hr. Methods used in extension teaching and their underlying principles.

Ed. 160. Materials and Methods of High-School Teaching of Vocational Agriculture. I. 3 hr. Organization and preparation for teaching vocational agriculture in the high school.

180, 181. Assigned Topics. I, II, S. 1-4 hr. per sem. PR: Adequate ability and training for the work proposed and permission to register.

Ed. 124. Student Teaching in Vocational Agriculture. I, II. 6 hr.

Ed. 276. Teaching Young and Adult Farmer Classes. I, SI. 2 hr. PR: Ed. 105, 106, or consent. Participation in conducting young and adult farmer classes and school-community food preservation centers; organization, course of study, methods of teaching and supervision of the classes, young farmers' associations, and adult farmers' organizations.

Ed. 277. Organization and Directing Supervised Farming Programs. I, SI. 2 hr. PR: Ed. 160 or consent. Planning programs of supervised farming, supervising and evaluating such programs for day students, young farmers, and adult farmers.

Graduate Division

239. Program Building in Cooperative Extension. II. 3 hr. PR: Agr. Educ. 134, 138, or consent. Rural organization in relation to program building. Leadership and group action. Over-all working and educational objectives. Principles, methods, and goals in developing county extension programs.

Ed. 318. Planning Programs and Courses for Vocational Agriculture Departments. SI. 2 hr. PR: Ed. 160, 124. Gathering data, studying the farming problems and building programs of day students, young farmers, and adult farmers in and through the high school for the community.

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

350, 351, 352, 353. Seminar. SI. 1 hr.

360. Problem. I, II, S. 1-3 hr. (For the Master's Degree).

380, 381. Research. I and II, S. 1-6 hr.

AGRICULTURAL ENGINEERING AND AGRICULTURAL MECHANICS

Professors Longhouse and Dickerson; Associate Professor Emerson; Assistant Professors Collins, Elliott, and Phillips.

AGRICULTURAL ENGINEERING

Undergraduate Division

10. Principles of Agricultural Engineering. I. 3 hr. PR: Math. 4. A general course introducing the several fields of agricultural engineering and how they are applied to agriculture and industry. 3 hr. rec.

100. Farm Structures. II. 3 hr. PR: T.A.M. 102. Structural design and functional requirements of farm service buildings. 2 hr. rec., 3 hr. lab.

110. Application of Electricity to Agriculture. II. 3 hr. PR: E.E. 205. Economic application of electric light, heat, and power. 2 hr. rec., 3 hr. lab.

140. Soil and Water Conservation. I. 3 hr. PR: C.E. 115. Engineering principles and practices in conservation, utilization, and management of soil and water resources. 2 hr. rec., 3 hr. lab.

180, 181. Assigned Topics. I, II. 1-4 hr. per sem.

190. Farm Machinery. II. 3 hr. PR: M.E. 201. Construction, operation, adjustment and testing of farm machines. 2 hr. rec., 3 hr. lab.

200. Seminar. I. 1 hr. PR: Senior standing.

220. Agricultural Process Engineering. II. 3 hr. PR: C.E. 115, M.E. 121. Application of the fundamentals of engineering to agricultural engineering processes. 2 hr. rec., 1 hr. lab.

230. Farm Power. I. 4 hr. PR: M.E. 121. Fundamental theories underlying design and operation of internal combustion engines used in agriculture. 3 hr. rec., 3 hr. lab.

240. Hydrology. I. 3 hr. PR: C.E. 115. The study of a hydrologic cycle with emphasis on precipitation and runoff as related to design of hydraulic structures, soil and water conservation, and flood control. 3 hr. rec.

Graduate Division

320, 321. Special Topics. I, II, S. 1-6 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

397. Research. I and II. 1-6 hr.

AGRICULTURAL MECHANICS

Undergraduate Division

152. Farm Shop. I. 3 hr. PR: Math. 3. Construction and repair problems including carpentry, metal working, forging, fitting tools, repairing harness, and filing saws. Primarily for Vocational Agriculture teachers. 1 hr. rec., 1 hr. lab.

155. Household Equipment. II. 3 hr. PR: Math. 3. Planned to help students understand mechanical equipment in the home and its effective use. 1 hr. rec., 3 hr. lab.

180, 181. Assigned Topics. I, II, S. 1-4 hr. per sem.

200. Rural Water Supply and Sanitation. I. 2 hr. PR: Agr. Eng. 10. Pump principles, planning installations of water systems, and sewage disposal systems. 1 hr. rec., 3 hr. lab.

252. Advanced Farm Mechanics. II. 3 hr. PR: Agr. Mech. 152. Forging, cold-iron work, tool fitting, woodworking. Offers training for teaching shop work in rural high schools. 1 hr. rec., 6 hr. lab.

253. Advanced Farm Machinery. II. 3 hr. PR: Agr. Eng. 10. Performance of agricultural equipment including calibration, efficiency, adjustments, and maintenance. Theoretical and practical aspects of selection based on economics, compatibility of machines with other equipment and the farming operation, service, and factors of custom operation. 2 hr. rec., 3 hr. lab.

254. Farm Maintenance and Construction Welding. II. 3 hr. PR: Agr. Eng. 10. Characteristics and properties of metals used in farm machinery and equipment. Machinery repair, including oxyacetylene cutting and welding. A.C. and D.C. electric. 1 hr. rec., 6 hr. lab.

255. Care and Repair of Home Equipment. II. 2 hr. For advanced undergraduate and graduate students. Construction, maintenance, and repair of household equipment; their comparative cost and economic use. 1 hr. rec., 3 hr. lab.

259. Farm Structures. I. 3 hr. PR: Agr. Eng. 10. Fundamentals of construction, functional requirements, materials, new equipment, and use of laborsaving ideas and machinery. 2 hr. rec., 3 hr. lab.

270. Electricity in Agriculture. I. 3 hr. PR: Agr. Eng. 10 and Math. 4. The study of the fundamentals of electrical energy and its application to lighting, power, heating, and control circuits used in agriculture. 2 hr. rec., 3 hr. lab.

275. Agricultural Engines. II. 3 hr. PR: Agr. Eng. 10. Relation of theory to design and operation of internal combustion engines with emphasis on care, operation, and maintenance. Study covers one, two, three, four, six and eight cylinder engines, both in two and four stroke cycle designs. 2 hr. rec., 3 hr. lab.

Graduate Division

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

380, 381. Research. I and II. 1-6 hr. per sem.

AGRONOMY AND GENETICS

Professors Pohlman, Baughman, and Veatch; Associate Professors Johnson, Jung, Sarkissian, and Ulrich; Assistant Professors Jencks and van Eck; Instructors Carlson and Reese.

AGRONOMY

Undergraduate Division

2. Principles of Soil Science. II. 3 hr. PR: Chem. 2. An introduction to soil science. 2 lec., 1 lab.

10. Forest Soils. I. 4 hr. PR: Chem. 1 and 2, Bot. 1, or Biol. 1 and 2. Introduction to soil science with particular emphasis on forest soils. 3 lec., 1 lab.

180, 181. Assigned Topics. I, II. 1-4 hr. per sem.

210. Fertilizer and Soil Fertility. I. 3 hr. PR: Agron. 2 or 10. Soil properties in relation to fertility and productivity of soils; evaluation of soil fertility; production of fertilizers and their use in increasing the fertility and productivity of soils.

212. Soil Conservation and Management. II. 3 hr. PR: Agron. 210. Principles of soil and water conservation in relation to soil erosion control. Using soil technology to solve soil management problems relating to cropping systems. Offered in 1964-65 and in alternate years.

216. Soil Genesis and Classification. II. 3 hr. PR: Agron. 2 or 10. The classification and mapping of soils. Theory and practice in soil classification, soil mapping, and land judging. Offered 1964-65 and alternate years.

230. Soil Physics. I. 3 hr. PR: Agron. 2 or 10. Physical properties of soils, water and air relationships and their influence on soil productivity. Offered in 1964-65 and alternate years. 2 lec., 1 lab.

251. Weed Control. I. 3 hr. PR: Agr. 52, Agron. 2, or consent. Fundamental principles of wood control. Recommended control measures for and identification of common weeds.

252. Grain and Special Crops. II. 3 hr. PR: Agr. 52, Agron. 2, or consent. Advanced study of methods in the production of grain and special crops. Varieties, improvement, tillage, harvesting, storage and uses of crops grown for seed or special purposes. Offered in 1964-65 and alternate years.

254. Pasture and Forage Crops. II. 4 hr. PR: Agr. 52, Agron. 2, or consent. All phases of pasture and forage crop production, including identification, seeding, management, use, seed production, and storage of forage crops. 3 lec., 1 lab.

Graduate Division

316. Soil Chemistry. I. 3 hr. PR: Consent. Fundamental chemical properties of soils in relation to plant growth; nature and properties of soil colloids; base exchange and soil acidity; availability of plant food elements and soil-plant interrelationships. Offered in 1963-64 and alternate years.

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

350, 351, 352, 353. Seminar. I, II. 1 hr. per sem. Recent literature pertaining to soil and crop production.

380, 381, 382, 383. Research. I, II. 1-6 hr. per sem.

BACTERIOLOGY

314. Soil Microbiology. II. 4 hr. PR: Agron. 2 and Bact. 141. Occurrence of microorganisms in soils and their relationship to decomposition of organic matter, availability of plant nutrients, and soil acidity; technique of isolation and study.

GENETICS

Undergraduate Division

111. Elementary Genetics. I. 2 hr. PR: 4 hr. biological science. Elementary study of the principles of heredity. (For non-science majors only).

171. Principles of Genetics. II. 3 hr. PR: 8 hr. of biological science. The fundamentals of inheritance. Must be accompanied by Gen. 172.

172. Genetics Laboratory. II. 1 hr. PR: Gen. 221 or registration in Gen. 171.

180, 181. Assigned Topics. I, II. 2-4 hr. PR: Gen. 171 or 221 and consent.

221. Basic Concepts of Modern Genetics. I. 3 hr. PR: 8 hr. of biological science and 1 year of chemistry. Independent inheritance, linkage. Chemical nature of genetic material. Control of phenotype by genetic material. Gene action and coding of genetic material.

224. Human Genetics. II. 3 hr. PR: Gen. 171 or 221 or consent. A study of the genetic system responsible for the development of phenotype in man. Offered in 1963-64 and alternate years.

Graduate Division

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

324. Cytogenetics. II. 3 hr. PR: Gen. 171 or 221 and Biol. 152 or 221 or consent. Cytogenetics of genomes and chromosome morphology and the evolution of these. Offered in 1964-65 and alternate years.

326. Advanced Physiological Genetics. II. 3 hr. PR: Gen. 171 or 211 and Organic Chem. Physiological and biophysical concepts of genetic material. Structure and arrangement of genetic units. Nucleic acids as carriers of genetic information. Gene action and amino acid coding. Biochemical evolution of genetic material. Offered in 1964-65 and alternate years.

350, 351, 352, 353. Seminar. I, II. 1 hr. per sem. Recent literature pertaining to breeding, genetics, and cytology.

380, 381, 382, 383. Research. I, II. 1-6 hr. per sem.

ANIMAL INDUSTRY AND VETERINARY SCIENCE

Professors Dunbar, Anderson, Kidder, McLaren, Olson, and Welch; Associate Professors Dozsa, Horvath, Hyre, Mitchell, Thomas, and Weese; Assistant Professors Ackerman, McBee, Rakes, and Reid; Instructors Boyles, B. Clark, and Smith.

ANIMAL INDUSTRY AND VETERINARY SCIENCE

Undergraduate Division

51. Principles of Animal Science. I. 4 hr. A comparative study of the production of meat, milk, eggs, and wool. Nutrition, physiology, genetics, hygiene, physical environment, and economics are discussed as bases for sound managerial decisions.

180, 181. Assigned Topics. I, II. 1-4 hr. per sem.

195. Seminar. II. 1 hr. Senior seminar.

Graduate Division

320, 321, 322, 323. Special Topics. I, II, S. 1-4 hr. (1 hr. credit in special cases only). Advanced study in particular phases of such animal industry topics as animal production, nutrition, physiology, breeding and genetics, veterinary science, and food science. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr. maximum credit, 6 hr.).

370. Methods of Animal Research. I. 3 hr. Design, experimental procedures, and analyses used in research in the several areas of animal industry. Offered in 1963-64 and alternate years.

ANIMAL BREEDING AND GENETICS

Undergraduate Division

212. Breeding and Incubation: Principles and Practices. I. 3 hr. (1 lab.). PR: Gen. 221 or consent. Study of methods available for improving and reproducing meat and egg quality. Offered in 1964-65 and alternate years.

226. Breeding of Farm Animals. II. 3 hr. PR: Gen. 221 or consent. The application of principles of quantitative population genetics to the improvement of farm animals.

Graduate Division

326. Advanced Animal Selection. II. 3 hr. PR: Stat. 212 and Gen. 221 or equiv. An advanced course dealing with the basic concepts of experimental and statistical approaches in the analysis of quantitative inheritance with special reference to the magnitude and nature of genotypic and non-genotypic variability.

350, 351, 352, 353. Seminar. I, II. 1 hr.

380, 381, 382, 383. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

ANIMAL NUTRITION

Undergraduate Division

101. Animal Nutrition. I. 3 hr. Digestion and metabolism of food nutrients, nutrient requirements of farm animals, and nutritive values of feeds and rations.

Graduate Division

303. Advanced Animal Nutrition. II. 3 hr. PR: An. Nutr. 101 and Chem. 131 or 233. Chemistry of feeding stuffs and of the animal body, as well as of digestion and metabolism of food nutrients. Offered in 1964-65 and alternate years.

306. Nutrition Laboratory Methods. I. 3 hr. PR: Agr. Biochem. 291. Quantitative methods in animal nutrition research. Offered 1964-65 and every third year.

307. Nitrogen Metabolism. I. 3 hr. PR: Agr. Biochem. 291. The biochemistry of protein and amino acid nutrition, and non-protein nitrogen metabolism in the ruminant. Offered 1964-65 and every third year.

310. Nutrition and Physiology of the Ruminant. II. 3 hr. PR: Physiol. 100; An. Nutr. 101; Agr. Biochem. 290. A study of the nutrition and physiological processes peculiar to the ruminant animal. Offered 1963-64 and alternate years.

330. Mineral Metabolism. II. 3 hr. PR: Agr. Biochem. 290-291, or consent. The inorganic and biochemistry of the minerals in the body and the physiological function of minerals are studied. A special term paper is required of each student on the mineral metabolism studies.

350, 351, 352, 353. Seminar. I, II. 1 hr.

380, 381, 382, 383. Research. I, II, S. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

ANIMAL PHYSIOLOGY

Undergraduate Division

100. Introduction to the Physiology of Domestic Animals. I. 3 hr. PR: Zool. 2; Chem. 131 (concurrent), or consent. The function and regulation of the principal systems of the animal body.

225. Reproduction of Farm Animals. II. 3 hr. PR: Zool. 2 or consent. The anatomy and physiology of reproduction in farm animals.

227. Milk Secretion. II. 3 hr. (1 lab.). PR: Chem. 131; An. Physiol 225. The evolution, anatomy, and growth of the mammary gland. The chemical, hormonal, physiological and environmental factors affecting lactation.

Graduate Division

350, 351, 352, 353. Seminar. I, II. 1 hr.

380, 381, 382, 383. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

NOTE: Students are also referred to Psych. 201, Physiological Psychology; Zool. 171, Human Physiology; Zool. 273, 274, Cellular Physiology; and Zool. 276, Comparative Physiology.

ANIMAL PRODUCTION

Undergraduate Division

103. Poultry Feeding and Management. II. 3 hr. Factors in poultry production, feeding, and management as related to scientific investigations.

108, 109, 110. Poultry Plant Experience. I, II, S. 1 hr. (3 hr. lab.). Experience in operating a poultry breeding farm, including trapnesting, incubation, and pedigreeing. A report will be required.

*123. Dairy Cattle History and Selection. II. 3 hr. (2 labs.). To familiarize the student with the history, development and programs of the breeds of dairy cattle as well as the modern concepts in phenotypic evaluation.

*138. Grading and Selection. II. 2 hr. (2 labs.). A study of the art of visual evaluation of live meat animals and the evaluation of scientific techniques used in selecting breeding stock and evaluating carcass merit.

*141. Beef Production. I. 3 hr. (1 lab.). Physiological and economical bases of beef production.

*142. Pork Production. II. 3 hr. (1 lab.). Physiological and economical bases of pork production.

*143. Advanced Judging. I. 2 hr. (2 labs.). Evaluation of breeding merit and potential carcass characteristics of representative examples of sheep, swine and beef cattle. Students taking this course will be required to participate in tours of representative flocks and herds. Consideration of the Quarter Horse is included.

162. Sheep Production. II. 3 hr. (1 lab.). Physiological and economical bases of sheep production.

201. Advanced Poultry Production. I. 3 hr. PR: An. Prod. 103 or An. Nutr. 101. Special phases of broiler and egg production, disease control, laborsaving studies, recent designs in building and heating equipment for all types of poultry.

*222. Milk Production. II. 4 hr. (1 lab.). Feeding and management of dairy cattle.

223. Advanced Livestock Production. I. 3 hr. (1 lab.). PR: An. Nutr. 101 and consent. Phases of beef production involving problem work in specialized commercial and purebred fields, including processing.

224. Advanced Livestock Production. II. 3 hr. (1 lab.). PR: An. Nutr. 101 and consent. Special studies in wool and market-lamb production and processing.

Graduate Division

330. Advanced Milk Production. II. 3 hr. PR: An. Nutr. 101 or consent. Advanced study of the feeding, breeding, and management of dairy cattle.

350, 351, 352, 353. Seminar. I, II. 1 hr.

380, 381, 382, 383. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

FOOD SCIENCE

Undergraduate Division

12. Dairy Technology. II. 3 hr. (1 lab.). Introductory. Composition and properties of milk and milk products; butterfat testing; manufacture of dairy products.

106. Preparation and Grading of Eggs and Poultry for Market. I. 2 hr. (1 lab.). Latest methods in killing, dressing, and grading poultry. Grading, storing, and processing eggs for market. Offered in 1963-64 and alternate years.

107. Milk and Public Health. I. 3 hr. (1 lab.). Food value of milk and its production and processing in relation to public health.

*Transportation for required trips in connection with these courses will generally be supplied by the College. Students will be responsible for their meals and lodging.

124. Judging Dairy Products. II. 2 hr. (2 labs.). A laboratory course in evaluating and judging dairy products.

166. Meats. II. 2 hr. (1 lab.). Lectures and demonstrations in identification, selection, and nutritive value of meat cuts. Primarily for home economics students.

*167. Meats. I. 3 hr. (2 labs.). Processing, curing, and care of meats. Visit to one of the large packing houses of Pittsburgh required.

*169. Meat Judging. I. 2 hr. (2 labs.). Tour of representative packing plants required.

*202. Advanced Meats. II. 3 hr. (2 labs.). PR: Food Sci. 167. Studies covering composition of meat, complete fabrication of meat animal carcasses, factors influencing yield, physiology and chemistry of pertinent phenomena, and merchandising of meat.

204. Advanced Dairy Technology. II. 4 hr. (2 labs.). Study of the effect of major milk constituents on properties of dairy products and study of analytical methods used in quality and composition control of dairy products.

230. Market Milk Products and Frozen Desserts. I. 4 hr. (1 lab.). The assembling, processing, packaging, storing and merchandising of dairy products. (Does not carry graduate credit for a student majoring in Dairy Foods.) Offered in 1964-65 and alternate years.

231. Butter, Cheese and Concentrated Milk Products. II. 3 hr. (1 lab.). Manufacture of butter, concentrated milk products, and various types of cheeses. (Does not carry graduate credit for students majoring in Dairy Foods.) Offered in 1964-65 and alternate years.

Graduate Division

312. Critical Evaluation of Recent Research and Developments in Dairy Foods. I. 4 hr. (2 labs.). Consent. Normally a minimum of Bact. 246 and at least one Dairy Foods course will be required. Methods, results and impact of recent research and developments pertaining to dairy food industry. Offered in 1964-65 and alternate years.

350, 351, 352, 353. Seminar. I, II. 1 hr.

380, 381, 382, 383. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

NOTE: Students are also referred to Bact. 246, Dairy Bacteriology, (listed under Plant Pathology, Bacteriology, and Entomology).

VETERINARY SCIENCE

Undergraduate Division

102. Animal Pathology. I. 3 hr. Diseases of domestic animals, with special emphasis on the common diseases.

206. Parasites and Pathology. II. 3 hr. PR: Zool. 2 or equiv. Common parasites of farm animals, their control, and their effect upon the host.

Graduate Division

350, 351, 352, 353. Seminar. I, II. 1 hr.

380, 381, 382, 383. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

*Transportation for required trips in connection with these courses will generally be supplied by the College. Students will be responsible for their meals and lodging.

HORTICULTURE

Professors Scott, Childs, Marsh, Schubert, and Westover; Associate Professors Dye, Fortney, Neal, and Steyers.

Undergraduate Division

115. Judging and Identification of Apple Varieties. I. 1 hr. Two laboratory periods first half of semester. Identification and judging of apple varieties.

116. Flower Judging. II. 1 hr. One laboratory period per week. Identification and judging of flowers with emphasis on the aesthetic values which underlie desirability in a variety.

117. Vegetable Identification and Judging. I. 1 hr. Identification and judging the common vegetables and the pests associated with olereoculture in West Virginia. Emphasis is placed on the cultural practices associated with top quality vegetables.

129. History and Appreciation of Landscape Design. II. 3 hr. An introduction to history and theory of landscape design.

140. Woody Plant Materials. II. 3 hr. Trees, shrubs, and vines; their identification, culture, and use. Offered in 1964-65 and alternate years.

141. Greenhouse Management. II. 3 hr. A practical study of greenhouses.

151. Floral Design. I. 3 hr. PR: Hort. 141 or consent. A basic course in flower arrangement to cover all occasions for the home and retail flower shop.

180, 181. Assigned Topics. I, II, S. 1-4 hr. per sem. Limit of 6 hr. credit.

204. Plant Propagation. II. 3 hr. A study of the practices of plant propagation and the factors involved in reproduction in plants.

206. Small-Fruits Production. I. 3 hr. A practical and scientific study of standard cultural practices in the small-fruit plantation.

208. Application of Sprays, Dusts, and Fumigants. II. 2 hr. PR: Entom. 202 or Pl. Path. 103 and Hort. 1, 2, or 229 (1 lec., 1 lab.). Training in the use of machinery and materials in the application of fungicides, insecticides, hormones, and plant nutrients to horticultural crops. Development and interpretation of spray schedules.

212. Commercial Tree-Fruit Production. I. 3 hr. Latest methods in pruning, spraying, soil culture, and other production practices for fruit trees from the practical and scientific standpoint.

229. Landscape Design. I. 3 hr. (1 lec., 1 scheduled lab., 1 arranged lab.). A course in ornamental horticulture giving an appreciation of the basic principles of design and information pertaining to the use and care of ornamental plants around the home.

232. Commercial Vegetable Production. II. 2 hr. PR: Hort. 1. Current methods of commercial vegetable production, including equipment, soil and climatic adaptation, plant raising, soil culture, harvesting, grading, and packing.

234. Laboratory Inspection Trip. II. 1 hr. PR or conc: Hort. 232. A 3-day inspection trip in connection with Hort. 232.

239. Advanced Landscape Design. I. 3 hr. PR: Hort. 140, 229, or consent. Advanced studies in landscape design.

Graduate Division

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

380, 381, 382, 383. Research I, II, S. 1-6 hr. per sem. (Max. credit, 6 hr.).

PLANT PATHOLOGY, BACTERIOLOGY, AND ENTOMOLOGY

Professors Barnett, Dorsey, Gallegly, Leach, Lilly, True, and Wilson; Associate Professors Adams and Elliott; Assistant Professor Koburger.

BACTERIOLOGY

Undergraduate Division

141. General Bacteriology. I, II. 4 hr. PR: Chem. 1, 2. Introductory, morphological, cultural, and physiological characteristics of bacteria; application of bacteriology to agriculture, home economics, sanitation, and health.

180, 181. Assigned Topics. I, II, S. 1-4 hr. per sem.

246. Dairy Bacteriology. I. 4 hr. PR: Bact. 141. Microorganisms in market milk, in manufacture of butter, cheese, and fermented milk, and in milk hygiene; practice in preparation of media; making bacterial counts in milk. Offered in 1964-65 and alternate years.

248. Sanitary Bacteriology. I. 3 hr. PR: Bact. 141. Standard bacteriological methods used in routine examination of water sewage. Offered in 1963-64 and alternate years.

Graduate Division

314. Soil Microbiology. II. 4 hr. PR: Bact. 141 and organic chemistry. Occurrence and distribution of microorganisms in soils and their interrelationships. Their role in decomposition of organic matter and other transformations of soil constituents. Offered in 1964-65 and alternate years.

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

380, 381, 382, 383. Research. I, II, S. 1-6 hr. per sem.

ENTOMOLOGY

Undergraduate Division

152. Forest Entomology. II. 3 hr. PR: Forestry 112. Relationships between insects and the forest; recognition and control of important species. This course is primarily designed for forestry students.

180, 181. Assigned Topics. I, II. 1-4 hr. PR: Entom. 202 or equiv. Special studies in insect ecology, life-histories, macro- and micro-anatimy, taxonomy, physiology, and control methods.

202. Agricultural Entomology. II. 4 hr. PR: Zool. 1, 2. A course dealing with the basic aspects of insect life, emphasizing the study of economically important insects and their control. Designed to meet the needs of students in agriculture. Does not carry graduate credit for majors in Entomology.

203. Economic Entomology. II. 3 hr. PR: Entom. 202. Evaluation of insect control problems; study of surveys and control methods; equipment; insecticides. Offered in 1964-65 and alternate years.

Graduate Division

313. Insect Transmission of Plant Diseases. I. 3 hr. PR: Pl. Path. 153, 201 or Entom. 202. Role of insects in spread and development of plant diseases. Offered in 1963-64 and alternate years.

320, 321, 322, 323. Special Topics. I, II, S. 2-6 hr. PR: Entom. 202. Advanced study of entomological topics of special interest to the student.

380, 381, 382, 383. Research. I, II, S. 1-6 hr.

PLANT PATHOLOGY

Undergraduate Division

153. Forest Pathology. I. 4 hr. PR: Biol. 2, For. 112. Important diseases of forest and shade trees. Causes and methods of control.

180, 181. Assigned Topics. I, II. 1-4 hr. per sem.

201. General Plant Pathology. I. 4 hr. PR: Bact. 141. Nature and causes of plant diseases; methods of control.

202. Principles of Plant Pathology. II. 4 hr. PR: Bact. 141 and either Plant Path. 153, 201, or 203, or consent. Primarily for graduate students and seniors majoring in botany, biology, or agricultural science. Nature of diseases in plants with practice in laboratory methods. Offered in 1963-64 and alternate years.

203. Mycology. I. 4 hr. Lectures, field and laboratory studies of parasitic and saprophytic fungi.

204. Diseases of Fruit Crops. I. 2 hr. PR: Pl. Path. 201. The important diseases of commercial fruits. Causes and methods of control. Offered in 1963-64 and alternate years.

205. Diseases of Ornamentals. II. 2 hr. PR: Pl. Path. 153 and 201. The important diseases of ornamentals. Causes and methods of control. Offered in 1963-64 and alternate years.

206. Diseases of Vegetable Crops. II. 2 hr. PR: Pl. Path. 201. The important diseases of potatoes and vegetable crops. Causes and methods of control. Offered in 1964-65 and in alternate years.

207. Diseases of Field and Forage Crops. II. 2 hr. PR: Pl. Path. 201. The important diseases of cereals, legumes, and grasses. Causes and methods of control. Offered in 1964-65 and alternate years.

208. Application of Sprays, Dusts, and Fumigants. II. 2 hr. PR: Entom. 202 or Pl. Path. 201 and Hort. 1, 2, or 229, or its equiv. One lecture and one laboratory. Training in the use of machinery and materials in the application of fungicides, insecticides, herbicides, hormones, and plant nutrients to horticultural crops. Also the development and interpretation of spray schedules.

209. Nematology. I. 3 hr. PR: Pl. Path. 201 or consent. Primarily for graduate students majoring in the agricultural sciences, zoology or botany. Nematode taxonomy, bionomics, and control, with particular emphasis on plant parasitic forms. Offered in 1964-65 and alternate years.

Graduate Division

313. Insect Transmission of Plant Diseases. I. 3 hr. PR: Pl. Path. 153, 201, or Entom. 202. Role of insects in spread and development of plant disease. Offered in 1963-64 and alternate years.

315. Advanced Forest Pathology. II. 3 hr. PR: Pl. Path. 203 and either Pl. Path. 153 or Pl. Path. 201. Principles, substance, and application of our knowledge of tree diseases and decays, especially as they may be related to forest management practices. Offered in 1963-64 and alternate years.

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

330. Physiology of the Fungi. II. 4 hr. PR: Organic chemistry, mycology, and bacteriology, or consent. Physiological aspects of growth, reproduction, and parasitism of fungi, with emphasis on nutrition, environment, and other biotic factors.

340. Taxonomy of the Fungi. I. 3 hr. PR: Pl. Path. 203. Collection and identification of fungi, with emphasis upon those of economic importance. Offered in 1964-65 and alternate years.

350, 351. Seminar. I, II. 1 hr. per sem.

380, 381, 382, 383. Research. I, II, S. 1-6 hr.

The Division of Forestry

GENERAL INFORMATION

ORGANIZATION AND PURPOSE

In its Division of Forestry, West Virginia University offers four curriculum options of four years each, three leading to the degree of Bachelor of Science in Forestry and one leading to the degree of Bachelor of Science in Wood Science. A student may major in forest management, wildlife management, wood science, or wood industry.

The field of forestry is a broad one. Those who enter it must receive an education of a breadth equal to that of the profession which they expect to make their life work. The professional forester's work includes such diversified activities as timber production, logging, surveying, timber estimating, park management, forest protection, forest-stand improvement, flood control, watershed protection, soil erosion control, submarginal land development, restoration of game, forest-range management, stream development, lumber dry-kiln operation, plywood and furniture manufacture, timber preservation, and construction of public camps and summer homesites.

The wide scope of the modern field of forestry demands a thorough basic training for the professional forester. This accounts for the large number of required courses in the professional forestry curricula. If a forester wishes to specialize in any one branch of the field, graduate work is needed.

Regardless of the major selected, the curriculum options include a two-years' broad foundational study of the natural and social sciences basic to the field of forestry. This is followed in the junior and senior years by a more detailed study of forestry principles and techniques. Many of the courses provide for field laboratories, enabling the student to see first-hand application of the principles presented in the classroom and to experiment with the various techniques he is learning.

In addition to the forest work which forms a part of the regular courses on the main campus at Morgantown and the summer Forestry Camp, the student is expected to devote the summer after his junior year to employment with a forest-using agency or private industry. This gives him further experience which is valuable in connection with his fourth-year studies, as well as in obtaining permanent employment after graduation.

Many opportunities for summer employment are arranged through the Division of Forestry with the United States Forest Service and with private forest industries which are members of the National Lumber Manufacturers Association. The remunerations for such temporary undergraduate employment varies from about $225 to $300 per month.

FACILITIES FOR INSTRUCTION

The Division of Forestry of West Virginia University is one of twenty-seven forestry schools in the country which are fully accredited by the Society of American Foresters. Situated in Morgantown, it is favorably located in relation to forests available for educational and research use.

Coopers Rock State Forest, an area of 13,000 acres fronting on Cheat Lake, is less than 10 miles from the main campus. The Division of Forestry has a 99-year lease on 7,500 acres of this Forest. The tract, now known as the West Virginia University Forest, is managed by the Division and is used for teaching, research and demonstration purposes. The Monongahela National Forest lies within 45 miles of Morgantown. The University Farm Woods, 100 acres bearing mature timber, is within two miles. Acquisition of the 500-acre Tygart Valley Forest at Dailey has increased the educational and research facilities of the Division. These forests are utilized by forestry students for study during their four years of training.

During 1951, an agreement was completed between West Virginia University and the Island Creek Coal Company. This agreement made the 3,000-acre Island Creek Experimental Forest available for research in applied forestry. The Division of Forestry maintains a resident forester at Holden who is in charge of the research forest in nearby Mingo County. Methods of forest production on a commercial basis, suited to the forest types and topography of southern West Virginia, are being studied. The experimental work is open to inspection by forestry students.

A lumber dry kiln, portable sawmill, and experimental wood-treating plant have recently been acquired by the Division of Forestry.

The dry kiln is of compartment type, cross circulating, steam heated, with automatic self-recording temperature and humidity controls. It has a capacity of approximately five thousand board feet of lumber per charge, and provides properly kiln-dried lumber for University use. It provides for student experience in dry kiln operation.

The portable sawmill is of standard type, and may be adapted to permanent, portable, or mobile use. It is driven by a 75-horsepower diesel engine. A truck-tractor and semi-trailer are used in transporting the mill and in hauling logs and lumber. The unit is used for training in mill installation, adjustment, and operation. Students participate in logging and sawmilling operations conducted under conditions similar to ordinary small industrial operations.

The experimental wood-treating plant is outstanding in its facilities for duplicating any of the commercial methods of pressure-treating wood. A recording instrument keeps a time, pressure, vacuum, and temperature record of each treating operation. In addition, indicating vacuum pressure and temperature gauges are installed, including a mercury-vacuum gauge. The equipment was designed especially for West Virginia University, to be used in laboratory instruction and research.

The facilities of the Division of Forestry also include a woodworking shop, plywood testing machine, and experimental plywood hot presses. A complete collection of samples of commercial woods of the United States is maintained for study.

The wood science laboratory is equipped with microscopes, a microtome for preparing wood sections used in identification, wood moisture meters, and a portable precision potentiometer. An experimental electrically-heated, condenser-type dry kiln with automatic temperature and humidity controls is used for practice, in addition to the five thousand-board foot steam-heated dry kiln.

The forestry library has been developed primarily for student use. It contains more than 20,000 catalogued books and bulletins covering the field of forestry. All periodicals of interest to the forester may be readily found. Student organizations are decorating the library with pictures and trophies, creating interesting and pleasant surroundings for study.

Camp Wood

The Forestry Camp, held each summer for students who have completed their sophomore year of the professional curricula, is situated near Alvon about 12 miles north of White Sulphur Springs, on the southern end of the Monongahela National

Forest in Greenbrier County. This location offers a great variety of forest types, conditions, activities, and industries.

The program of instruction provides training and practical experience in land surveying, timber estimating, forest management, wildlife management, and wood utilization. A logging operation is carried out by the students on the Meadow Creek Management Area. This is a tract of mature oak and pine timber which has been reserved by the United States Forest Service for this purpose. A considerable area of timber near the camp has been reserved by private owners for mensuration studies. The camp program culminates in a one-week trip into the southern pine region, where silvicultural operations and wood-using industries are studied.

The cost of tuition for resident students is $4.00 per credit hour plus $4.00 per credit hour registration fee. For nonresidents, tuition is $8.00 per credit hour plus $12.00 per credit hour registration fee. Other fees include insurance, approximately $3.15 for 10 weeks (required only if the student has no University Insurance), and the Student Union Building Fee and Cultural Program, $3.50. An additional $10 is collected for lodging on the southern trip. Other expenses for scheduled trips from camp usually total about $25.

REQUIREMENTS FOR THE DEGREE

The Division of Forestry offers three curriculum options leading to the degree of Bachelor of Science in Forestry. The first year of work is the same in all three curricula. The option in wood science leads to the degree of Bachelor of Science in Wood Science (B.S.W.S.).

Courses to be taken during the first and second semesters of work by freshmen in all curricula, except Wood Science, are listed below. The curriculum in Wood Science is listed on pages 127-128.

FIRST YEAR, ALL CURRICULUM OPTIONS

(Except Wood Science)

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Biol. 1—General	4	Biol. 2—General	4
Chem. 1—General	4	Chem. 2—General	4
English 1—Composition	3	English 2—Composition	3
For. 1—Profession*	1	For. 2—Profession*	1
For. 3—Convocation	0	For. 4—Convocation	0
Math. 2—Algebra	3	Math. 4—Plane Trigonometry	3
Mil. Sci. or Air Sci. 1	2	Mil. Sci. or Air Sci. 2	2
Phys. Educ. 1—General Program	1	Phys. Educ. 2—General Program	1
	18		18

*Freshmen only.

The curricula for the last three years are shown separately as follows. In each curriculum option the student will have an opportunity to take elective courses that will complete a well-rounded course of study.

FOREST MANAGEMENT

The forest management option offers a strong basic course in Forestry leading particularly to employment in the management of forest land. It is designed to train the student for a professional forestry career in either public or private forestry.

Graduates are prepared to hold positions with the various state forestry and conservation departments, the U. S. Forest Service, the Forestry Division of the U. S. Indian Service, the Soil Conservation Service, and the other federal and state

agencies employing professional foresters. They may also be employed by private forest land owners—both corporate and individual—or may enter business as consulting foresters. This option provides a good background for graduate work in all phases of forest production management.

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Agron. 10—Forest Soils	4	Bot. 68—Dendrology	2
Bot. 61—Systematic	2	Bot. 171—Plant Physiology	3
Bot. 67—Dendrology	3	C.E. 6—Topographic Mapping	2
C.E. 5—Land Surveying	4	English 13—Expository Writing	2
Econ. 1—Principles	3	For. 6—Convocation	0
For. 5—Convocation	0	For. 11—Silvics	3
Mil. Sci. or Air Sci. 3	2	For. 21—Mensuration	4
		Mil. Sci. or Air Sci. 4	2
	18		18

SUMMER PRECEDING THIRD YEAR

10 Weeks—10 Hours Credit

For. 106—Forest Surveying and Mensuration Field Practice	5
For. 107—Forest Management, Utilization, and Wildlife Practices	5
	10

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 112—Silvicultural Systems	3	For. 113—Seeding and Planting	3
For. 131—Wood Identification	3	For. 114—Forest Economics	3
For. 151—Protection	2	For. 125—Policy and Administration	3
Physics 1—Introductory	4	For. 133—Lumbering	3
Electives	5	Electives	5
	17		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 116—Regional Silviculture	2	For. 126—Forest Measurement by Aerial Photographs	2
For. 123—Management	4	For. 134—Forest Products	3
For. 124—Forest Finance	3	For. 141—Wildlife Management	3
Pl. Path. 153—Forest Pathology	4	Entomol. 152—Forest Entomology	3
Electives	5	Electives	5
	18		16

WILDLIFE AND FISH MANAGEMENT

The wildlife and fish management option is designed to give basic undergraduate training in wildlife and fisheries biology. Students who elect this option will satisfy the requirement for graduation by completing successfully 150 credit hours, including all the required courses listed below, and elective courses in botany, zoology, bacteriology, and other related fields. Those completing the curriculum are granted the degree of Bachelor of Science in Forestry.

Many wildlife and fisheries biology positions require the Master's Degree, and majors in this curriculum are encouraged to enroll for graduate work in other institutions. Graduates in wildlife management will, however, meet all requirements for taking the U. S. Civil Service examination for biologist, and will ordinarily meet all requirements for the entering examination in general forestry.

Students in wildlife management will be advised to include, among their electives, courses in botany, zoology, and other related fields. Students who expect to specialize in fish management will take Zool. 251, Invertebrate Zoology; Zool. 263, Ichthyology; Zool. 264, Fisheries Biology, and 9 hours of elective courses.

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Agron. 10—Forest Soils	4	Bot. 68—Dendrology	2
Bot. 61—Systematic	2	Bot. 171—Plant Physiology	3
Bot. 67—Dendrology	3	C.E. 6—Topographic Mapping	2
C.E. 5—Land Surveying	4	For. 6—Convocation	0
Econ. 1—Principles	3	English 13—Expository Writing	2
For. 5—Convocation	0	For. 11—Silvics	3
Mil. Sci. or Air Sci. 3	2	For. 21—Mensuration	4
		Mil. Sci. or Air Sci. 4	2
	18		18

SUMMER PRECEDING THIRD YEAR

For. 106—Forest Surveying and Mensuration Field Practice	5
For. 107—Forest Management, Utilization, and Wildlife Practices	5
	10

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 112—Silvicultural Systems	3	For. 113—Seeding and Planting	3
For. 131—Wood Identification	3	For. 114—Forest Economics	3
For. 151—Protection	2	For. 125—Policy and Administration	3
Physics 1—Introductory	4	For. 144—Forest Zoology	3
Electives	5	Electives	5
	17		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 123—Management	4	For. 134—Forest Products	3
Pl. Path. 153—Forest Pathology	4	For. 141—Wildlife Management	3
Electives	9	For. 145—Life Histories of Game Animals	3
		Entomol. 152—Forest Entomology	3
		Electives	5
	17		17

WOOD INDUSTRY

The four-year Wood Industry option leads to a degree of Bachelor of Science in Forestry and is designed primarily to develop qualified foresters for work with wood-using industries. The wood-using industry includes basic lumber products, lumber and veneer products, paper and allied products and ranks fourth in the nation in the number of wage earners employed.

The first and second years of study are devoted to those basic preparatory subjects that are essential to the more technical courses that follow. The third and fourth years of study allow the student to obtain theory and practice in the more technical phases of his forestry education. Courses in business law and industrial management are included. These provide training in the fundamentals of business practice essential to the forester who contributes to the development of wood industries.

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Agron. 10—Forest Soils	4	Acctng. 1—Prin. of Accounting	3
Bot. 67—Dendrology	3	Bot. 68—Dendrology	2
C.E. 5—Land Surveying	4	For. 6—Convocation	0
Econ. 1—Principles	3	For. 11—Silvics	3
English 13—Expository Writing	2	For. 21—Mensuration	4
For. 5—Convocation	0	For. 133—Lumbering	3
Mil. Sci. or Air Sci. 3	2	Mil. Sci. or Air Sci. 4	2
	18		17

SUMMER PRECEDING THIRD YEAR

For. 106—Forest Surveying and Mensuration Field Practice	5
For. 107—Forest Management, Utilization, and Wildlife Practices	5
	10

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 112—Silvicultural Systems	3	For. 114—Forest Economics	3
For. 131—Wood Identification	3	For. 134—Forest Products	3
For. 151—Forest Protection	2	Entomol. 152—Forest Entomology	3
Physics I—Introductory	4	Management 111—Industrial Mgmt.	3
Electives	6	Electives	6
	18		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 123—Management	4	For. 135—Seasoning and Preservation	4
For. 124—Forest Finance	3	For. 137—Grading Wood Products	3
For. 132—Properties of Wood	3	For. 138—Advanced Lumbering	3
Pl. Path. 153—Forest Pathology	4	For. 139—Marketing Forest Products	3
Bus. Ad. 111—Business Law	3	Bus. Ad. 112—Business Law	3
	17		16

WOOD SCIENCE

The option in wood science is intended to prepare students to pursue graduate work in the technical phases of wood use or to enter directly into positions dealing with the conversions of forest crops into useful products. Such positions may be either governmental or industrial, with both groups further divided into various degrees of administrative, research, or developmental effort. Students electing to enter the field of wood science should demonstrate a marked facility in mathematics, physics, and chemistry, since these basic sciences form the foundation for a large part of the knowledge involved in the the properties and processing of wood.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1—Composition	3	English 2—Composition	3
For. 1—Introduction to Forestry	1	Mil. Sci. or Air Sci. 2	2
Mil. Sci. or Air Sci. 1	2	Phys. Educ. 2—General Program	1
Phys. Educ. 1—General Program	1	For. 2—Introduction to Forestry	1
For. 3—Convocation	0	For. 4—Convocation	0
Math. 15—Anal. Geom. and Calculus	4	Math. 116—Anal. Geom. and Calculus	4
(Math. 14—Supplement to Math. 15, if needed)	(2)	C.E. 1—Surveying	2
Bot. 1—General Botany	4	Bot. 171—Plant Physiology	3
	15 (17)		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—General Chemistry	4	Chem. 2—General Chemistry	4
Physics 111—General Physics	4	Physics 112—General Physics	4
Math. 117—Calculus	4	T.A.M. 101—Statistics	3
Mil. Sci. or Air Sci. 3	2	For. 6—Convocation	0
For. 5—Convocation	0	For. 21—Mensuration	4
Bot. 67—Dendrology	3	Mil. Sci. or Air Sci. 4	2
	17		17

SUMMER PRECEDING THIRD YEAR

A minimum of 10 weeks of summer employment with a forest products laboratory, wood-using industry, or related facility, will be required.

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233—Organic Chemistry	4	Chem. 260—Physical Chemistry	4
Econ. 1—Principles	3	For. 11—Silvics	3
English 13—Report Writing	2	For. 114—Forest Economics	3
For. 131—Wood Identification	3	For. 133—Lumbering	3
Speech 11—Public Speaking	3	For. 134—Forest Products	3
T.A.M. 102—Mechanics of Materials	3	General Electives	3
	18		19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 132—Properties of Wood	3	For. 135—Seasoning and Preservation	4
General Electives	3	General Electives	6
Restricted Electives*	12	Restricted Electives*	8
	18		18

*Restricted Electives: Twenty credit hours must be taken from among the following list of courses in: agriculture, biology, botany, chemistry, engineering, forestry, languages, mathematics, and physics.

List of Approved Restricted Electives for Wood Science Curriculum

AGRICULTURE: Statistics 211 and 212, 3 hr.; Gen. 111 or 221, 3 hr.; Plant Path. 153, 4 hr.

BOTANY AND BIOLOGY: Bot. 221, 4 hr.; Biol. 211, 3 hr.

CHEMISTRY: Chem. 5 or 105, 4 hr.; Chem. 6 or 106, 4-5 hr.; Chem. 15 or 115, 3 hr.; Chem. 201, 3 hr.; Chem. 262, 2 hr.

ENGINEERING: Mat.Sci.E. 255, 3 hr.; C.E. 160, 4 hr.; C.E. 170, 3 hr.; E.E. 105, 4 hr.; E.E. 120, 3 hr.; E.E. 121, 2 hr.; I.E. 140, 3 hr.; I.E. 250, 3 hr.; I.E. 288, 2 hr.; T.A.M. 103, 3 hr.; T.A.M. 104, 3 hr.; T.A.M. 200, 3 hr.; T.A.M. 203, 3 hr.; M.E. 20, 3 hr.

FORESTRY: For. 112, 3 hr.; For. 123, 4 hr.; For. 124, 4 hr.; For. 137, 3 hr.; For. 138, 3 hr.; For. 139, 3 hr.; For. 151, 2 hr.

LANGUAGES: German 121 and 122, 6 hr.; Russian 1 and 2, 6 hr.; French 1 and 2, 6 hr.

MATHEMATICS: Math. 240 or 253, 3 hr.; Math. 242, 3 hr.; Math. 256, 3 hr.

PHYSICS: Physics 113, 114, 3 hr. per sem.; Physics 117, 3 hr.; Physics 221, 3 hr.; Physics 284, 3 hr.

GRADUATE PROGRAM IN FORESTRY

The Division of Forestry offers graduate training in various phases of forestry leading to the degree of Master of Science in Forestry (M.S.F.).

A candidate for the master's degree must meet the requirements for admission to the Graduate School as listed in the Graduate School *Announcements*. This includes: (a) holding a bachelor's degree from an institution with a full four-year program, (b) filing the application for admission with the Registrar of the University at least one month prior to registration, and (c) having the registrars of colleges or schools previously attended send an official transcript directly to the Registrar of the University at least one month in advance of registration. In addition, master's candidates must take the Graduate Record Examination, preferably prior to registering for graduate work at the University.

Admission to the Graduate School does not constitute acceptance of a student by the Division of Forestry. The student must also be admitted by the Division, and should contact the Division's Director to determine whether or not he will be accepted.

The program of study for each master's candidate will be determined by consultation between the adviser, student, and the student's graduate committee. The curriculum will be flexible and determined by the academic background and interests of the individual. Students having a deficiency in undergraduate prerequisite courses will be required to take and pass such courses without credit during their graduate program.

A candidate for the Master of Science in Forestry degree must pass satisfactorily a minimum of 30 credits of approved work, of which no more than 6 may be thesis credits. Twelve months of residence is required. The thesis, required of each candidate, must be the result of independent research based on field and laboratory work.

A number of teaching assistantships, based on a 12-month period, are available for graduate students. Recipients of these assistantships will help with the undergraduate program for 20 hours per week. Students holding assistantships will need a minimum of two years, or equivalent, to complete the requirements for the master's degree. Maximum credits which they are allowed to carry are 10 hours per semester; tuition is exempt.

COURSES OF INSTRUCTION IN FORESTRY

Undergraduate Division

1, 2. The Profession of Forestry. I and II. 1 hr. per sem. (Required only for students who rank as freshmen in the Division of Forestry.) Survey of the profession of forestry and the opportunities available to foresters.

3, 4, 5, 6. Forestry Convocation. I and II. No credit. All students are expected to attend the weekly convocation. Attendance is required of students during their first four semesters in the Division of Forestry. Speakers and timely topics in forestry and allied fields are presented.

11. Silvics. II. 3 hr. PR or conc: Bot. 67, 68. Forest and environment factors; site and type characteristics.

21. Forest Mensuration. II. 4 hr. PR: Math. 2, 4. Measurements of forest products, trees, and stands; timber estimating; introduction to growth and yield.

106. Forest Surveying and Mensuration Field Practices. S. 5 hr. PR: Bot. 67, C.E. 5, For. 21. The application of surveying and mensurational practice with emphasis on field problems.

107. Forest Management, Utilization, and Wildlife Practices. S. 5 hr. PR: For. 106. Study of forest management, utilization, and wildlife problems. Trip to observe forest management and utilization in the Southern Pine Region.

112. Silvicultural Systems. I. 3 hr. PR: For. 11. Principles of regeneration cuttings, intermediate cuttings, and cultural operations, with their application to forest stands.

113. Seeding and Planting. II. 3 hr. PR: For. 11. Seeding and planting nursery practice; phases of artificial regeneration.

114. Principles of Forest Economics. II. 3 hr. PR: Econ. 1 or Agr. Econ. 102. The economics of production, distribution, and use for forest goods and services. Emphasis is on the use of analytical methods and techniques in dealing with forest economic problems.

116. Regional Silviculture. I. 2 hr. PR: For. 11, PR or conc: For. 112. Major forest types of the United States; their composition, management, problems, and silvicultural treatment.

123. Forest Management. I. 4 hr. PR: Summer Camp, PR or conc: For. 112. The principles of sustained yield forest management. Organization of the forest area, selection of management objectives, application of silvicultural systems, and regulation of the cut. The forest management plan.

124. Forest Finance. I. 3 hr. PR: For. 114. Cost and income items in producing and exploiting forest crops; appraisal of stumpage and damages.

125. Forest Policy and Administration. II. 3 hr. (Upperclassmen only). Forest policy in the United States; important federal and state laws; administration of public and private forests.

126. Forest Measurement by Aerial Photographs. II. 2 hr. PR: For. 21. Elements of photogrammetry; preparation of maps; interpretation of forest types and timber volumes from aerial photographs.

131. Wood Identification. I. 3 hr. PR: Bot. 67, 68. Identification of commercial timbers of U.S.; basic properties and uses of different woods.

132. Properties of Wood. I. 3 hr. PR: For. 131. Physical and mechanical properties of wood; testing, machining, gluing, finishing, and special processing of wood.

133. Lumbering. II. 3 hr. PR or conc: For. 21. Logging practices and lumber manufacture, logging and mill equipment, important factors affecting lumber grades.

134. Forest Products. II. 3 hr. PR or conc: For. 131. The production and uses of forest products other than lumber and timber.

135. Seasoning and Preservation. II. 4 hr. PR: For. 131. Purposes, effects, and methods of seasoning and preserving wood.

137. Grading Wood Products. II. 3 hr. PR: For. 21, 131. Inspection methods and application of standard grading rules to forest products, with emphasis on the inspection of hardwood and southern pine lumber.

138. Advanced Lumbering. II. 3 hr. PR: For. 133. Organization of the business operation of logging equipment, records, and cost control.

139. Marketing Forest Products. II. 3 hr. PR: For. 134. Methods of marketing lumber and other forest products in domestic and foreign trade.

140. West Virginia's Natural Resources. I, II. 3 hr. (Primarily for students enrolled in the College of Education, but open to other upper-division students. Professional forestry students may not take this course for credit.) A survey of policies and practices in development and use of soil, water, forest, wildlife, mineral, and human resources in West Virginia.

141. Wildlife Management. II. 3 hr. PR: Bot. 61 and Biol. 2. Basic principles of handling wildlife as a forest crop, including population dynamics, ecological relationships, social behavior, habitat manipulation, and game administration.

142. Recreational Developments. II. 2 hr. PR: C.E. 6, Summer Camp. Needs of the active and passive recreationist and means of supplying facilities for meeting these needs in public forests.

143. The Forest Range. II. 2 hr. PR: C.E. 5. A survey of basic range management techniques and practices on forest lands, with consideration of range mapping and important forage plants.

144. Forest Zoology. II. 3 hr. PR: Biol. 2 or Zool. 2. The relationship of mammals, reptiles, amphibians, and fish to the forest, with emphasis on the ecology and taxonomy of these groups.

145. Life Histories of Game Animals. II. 3 hr. PR: Biol. 2 or Zool. 2. Field and laboratory studies of game-bird and game-mammal life histories, with special reference to management of population of these species.

146. Ornithology. II. 2 hr. PR: Biol. 1, 2, or consent. Identification, distribution, and ecology of birds (particularly of forest lands).

151. Forest Protection. I. 2 hr. (Upperclassmen only). Preventative action, preparation activities, and control of forest fires.

170, 171, 172, 173. Forestry Problems. I, II. 1 hr. ea. For seniors only. (4 hr. maximum).

183. Farm Woods Management. II. 3 hr. (Professional forestry students may not take this course for credit.) Characteristics of forest trees; management of farm woods for timber, wildlife, watershed protection, and recreation; measuring and marketing farm timber; plantation establishment.

217. Forest Management Plans. II. 2 hr. PR: For. 123. Analyses of forest management plans. Construction of a sustained yield timber management plan for a specific forest tract.

222. Forest Mensuration. II. 3 hr. PR: For. 21. The measurement of growth and yield; statistical methods applied to forest measurement problems.

Graduate Division

311. Environmental Relationships in Hardwood Forests. I. 3 hr. PR: For. 112. The study of environmental factors affecting establishment, composition, and growth of hardwood forests.

312. Silvicultural Practices for Hardwood Forest Types. II. 3 hr. PR: For. 112, 116. Designing proper silvicultural systems for managing Appalachian hardwood stands; reconstructing stand histories, recognizing problems, and prescribing appropriate silvicultural treatment.

320, 321. Special Topics. I, II. 2-4 hr. per sem. PR: Consent. (For the Master of Science Degree, Special Topics ordinarily may count 2 to 4 hours; maximum credit, 6 hr.).

350, 351. Seminar in Silviculture. I, II. 1-6 hr. per sem. PR: Consent. Reports and discussions of recent research in fundamental and applied phases of silviculture with emphasis on hardwood forest types.

380, 381, 382. Research. I, II, S. 1-6 hr. per sem. PR: Consent. For graduate students working on a thesis problem.

The Division of Home Economics

The Division of Home Economics is located on the Main Campus near the women's dormitories. Offices for staff members, classrooms, and laboratories equipped for teaching in foods, nutrition, clothing, textiles, home management, child development, and family life are located in Oglebay Hall. Additional facilities include a Nursery School and Home Management House.

The offerings in the Division of Home Economics are designed to fulfill a variety of educational needs. The goal is to develop professional people with knowledge and skills which can contribute to the effectiveness of family living. The plan of work during the first two years provides a broad background of training in the fields of English, literature, natural and social sciences, and an introduction to the basic areas in home economics. The last two years provide opportunities for specialization in a particular vocational field.

CAREERS IN HOME ECONOMICS

Vocational opportunities for home economics far outnumber the trained graduates available for jobs. Those who are employed work in a variety of positions—high school or college teachers, extension workers, dietitians, nursery school supervisors, commercial demonstrators, journalists, and radio and television programmers. Some find opportunities in retailing, interior decorating, or home planning centers. Others choose careers in research or social service.

REQUIREMENTS FOR THE DEGREES

The Division of Home Economics offers courses leading to the granting of a Bachelor of Science degree in Home Economics and a Bachelor of Arts degree with a major in Home Economics.

BACHELOR OF SCIENCE IN HOME ECONOMICS

The degree of Bachelor of Science in Home Economics will be conferred upon any student who satisfies the entrance requirements and offers 128 hours of college credit and the required grade points, including the courses listed below:

General: English rhetoric, literature, and Speech (not more than 3 hr. of speech), 12 hr.; chemistry or physical science, 8 hr.; history, psychology, social studies, economics (with work in at least two of these fields), 9 hr.; biological science, 8 hr.; physical education, 4 hr.; TOTAL: 41 hours. Humanities 1 and 2 may be substituted for History 1 and 2.

Home Economics: Foods and nutrition, 6 hr.; management and family life, 7 hr.; textiles and clothing, 5 hr.; applied art, 4 hr.; child development, 3 hr.; electives in home economics, 15 hr.; TOTAL: 40 hours.

General Electives: TOTAL: 47 hours.

Fifty-eight (58) hours, to include Home Management Laboratory (H.E. 234), must be selected from upper-division courses. A grand total of 128 hours is required for the degree of Bachelor of Science in Home Economics.

Sufficient electives are allowed to permit the student to satisfy the requirements for a first-class high-school certificate to teach in West Virginia, or to fulfill professional requirements for apprenticeship, internship, or similar professional experiences in a variety of fields such as institution management, hospital dietetics, food and textile research, retailing, extension work, and government services.

It is suggested that students carry a maximum of 16 hours while living in the Home Management House, or while doing student teaching.

A student who is working for room and board may not carry more than 14 hours until she has demonstrated that she is able to maintain a "C" average.

A.B. DEGREE WITH MAJOR IN HOME ECONOMICS

Students who wish to offer home economics as a major in the College of Arts and Sciences are referred to the information concerning the Bachelor of Arts degree with a major in home economics in the *Announcements* of the College of Arts and Sciences.

CLASSIFICATION OF STUDENTS

To be classified as a regular freshman, a student must fulfill all entrance requirements. To be classified as a sophomore, she must have completed 25 hours; as a junior, 58 hours; as a senior, 92 hours.

Suggested Curriculum for First Two Years

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3	English 3, 4 or 5	3	Speech 3, 6 or 11	3
Chem. 1*	4	Chem. 2*	4	Home Ec. 15	4	Zool. 151	4
(or)		(or)		Home Ec. 12	3	Home Ec. 23	2
Phys. Sci. 1	4	Phys. Sci. 2	4	Biol. 1	4	Home Ec. 114	2
History 1	3	History 2	3	Econ., Sociol.		Phys. Ed.	1
(or)		(or)		(or)		Econ., Sociol.	
Humanities 1	4	Humanities 2	4	Soc. Sci.	3 or 4	(or)	
Home Ec. 1	2	Home Ec. 2	2	Phys. Ed.	1	Soc. Sci.	4
Phys. Ed.	1	Home Ec. 3	2				
		Phys. Ed.	1				

*Prospective dietitians should elect Chem. 1 and 2.

The Curriculum for Teachers

Students who wish to obtain a certificate to teach home economics in high school must meet requirements of the State Board of Education and of the College of Education. Recommendation for certification is made by the Dean of the College of Education. For requirements, see the bulletin, *Teacher Training Programs.*

West Virginia University has been approved by the State Department of Education and the U. S. Office of Education to train teachers of vocational homemaking.

All students who meet requirements for vocational certificates in home economics as set forth in the bulletin, *Teacher Training Programs,* will be recommended for vocational certificates.

COURSES OF INSTRUCTION IN HOME ECONOMICS

1. Students in the College of Arts and Sciences who major in home economics must meet the requirements of that college and also the Core requirements of the Division of Home Economics.

2. Students who wish to obtain the high-school certificate to teach home economics must meet the requirements of the State Board of Education, the College of Education, and the Division of Home Economics. The B.S.H.E. degree in the College of Agriculture, Forestry, and Home Economics is planned to allow sufficient electives to meet these requirements.

3. Students from other colleges may elect home economics courses provided they can meet the prerequisites.

FOODS AND NUTRITION

Associate Professors Yearick and Jones; Assistant Professor Graf.

1. Elementary Nutrition. I, II. 3 hr. Essentials of adequate diet; applications are made with particular reference to needs of college students.

15. Food Selection and Preparation. I, II. 3 hr. PR: H.E. 1, Chem. 2 or Phys. Sci. 2, or consent. (2 lec., 1 lab.). Basic principles of food selection, care and preparation. Emphasis is placed on the chemical and physical properties of foods and reactions which occur during processing.

101. Nutrition. I. 3 hr. PR: Biochem. 139 or consent. (2 lec., 1 lab.). The role of food nutrients in the physiological and biochemical processes of the body; nutritional needs of healthy individuals under ordinary conditions and in periods of physiological stress.

105. Planning and Serving Family Meals. I or II. 2 hr. A practical course in food selection, preparation, and service. Course is based on student needs and interests. (Not open to Home Economics students.)

115. Meal Planning, Preparation, and Service. I, II. 3 hr. PR: H.E. 15 or consent. (1 lec., 3-hr. lab.). Selection and purchase of foods; planning, preparing, and serving meals with emphasis on time, energy, and money management.

121. Nutrition and the Family. II. 3 hr. (2 lec., 1 rec.) PR: H.E. 1. A family centered approach to nutrition, emphasizing the different needs of its members. Opportunity to explore nutritional problems and their solutions through contacts in the community.

125. Foods for Special Occasions. II. 2 hr. PR: H.E. 15 or consent. Unusual foods and unusual methods of preparing and serving everyday foods. Preparation, organization, and management involved in food for social functions. Offered in 1963-64 and alternate years.

181. Problems in Nutrition. I, II. 1-4 hr. PR: Consent.

185. Problems in Foods. I, II. 1-4 hr. PR: Consent.

201. Diet Therapy. II. 3 hr. PR: H.E. 101, Zool. 171. Adaptations of normal diet for diseases whose prevention or treatment is largely influenced by diet. Offered in 1964-65 and alternate years.

205. Experimental Cookery. II. 3 hr. PR: H.E. 15, Chem. 131. (1 hr. lec., 2 2-hr. labs.). Utensils, ingredients, temperature, manipulation, and cooking methods as they affect quality of cooked products. Offered in 1964-65 and alternate years.

211. Readings in Nutrition. II. 1-4 hr. PR: H.E. 101 or consent. Review of current literature and of present research. Topics depend upon needs and interest of class members.

215. Food Preservation. I. 2 hr. PR: H.E. 15 (1 1-hr. lec., 1 2-hr. lab.). Fundamental principles involved and actual experience in various methods of food preservation. Offered in 1963-64 and in alternate years.

221. Community Nutrition Problems. I. 2 hr. PR: Consent. (2 hr. lec., field work.) Includes consideration of organizations and agencies through which these problems may be solved.

231. Nutrition Education for Elementary Teachers. II. 2 hr. PR: Consent. Fundamental principles of human nutrition with special emphasis on the needs of children. The laboratory period will be used for evaluation and development of instructional aids and teaching units.

281. Problems in Nutrition and/or Diet Therapy. I, II. 1-4 hr. PR: Consent.

285. Problems in Foods. I, II. 1-4 hr. PR: Consent.

301. Graduate Nutrition Seminar. I, II. 1-4 hr. PR: H.E. 101 and consent. Review and discussion of recent progress in foods and nutrition research.

361. Nutrition Research. I, II. 1-6 hr. PR: H.E. 101, Chem. 6 or 106 or consent. Research in foods and/or nutrition.

INSTITUTION MANAGEMENT

Assistant Professor Graf.

108. Quantity Cookery. I. 3 hr. PR: H.E. 115. (1 lec., two 3-hr. labs. arranged). Application of principles to preparation of food in large quantities. Use of standardized formulae, calculation of costs, and use of institution equipment. University Cafeteria used as a laboratory. Field trip included.

118. Institution Accounting. II. 2 hr. Current procedures in accounting for institutions. Preparation of budgets, food-control records, financial statements, and reports.

128. Institutional Buying. I. 2 hr. PR: H.E. 108. Producing areas, distribution of food products, specifications, storage and food practices in quantity buying. Observation in local wholesale markets, warehouses, and storage units. Offered in 1964-65 and alternate years. Tour of market facilities in Pittsburgh area required.

138. Institution Organization and Management. II. 3 hr. PR: H.E. 108. Principles of organization and management of food service. University Cafeteria used as laboratory. Field trip included.

148. Laboratory Practice in Institution Management. I, II. 2 hr. PR: H.E. 138 and consent. (Arranged). Experience under supervision in planning, preparing and serving food in an institution. Selection of place and type of experience to be determined by needs of students.

188. Problems in Institution Management. I, II. 1-4 hr. PR: Consent.

288. Problems in Institution Management. I, II. 1-4 hr. PR: Consent.

TEXTILES AND CLOTHING

Associate Professor Dietrich; Instructor Weibel.

2. Elementary Clothing. I, II. 2 hr. Problems in selection and construction of clothing. For freshmen and others who do not pass placement test.

12. Intermediate Clothing. I, II. 3 hr. PR: H.E. 2 or exemption of H.E. 2 by placement test. Development of judgment in selection and skill in construction. Emphasis on pattern alteration and fitting. Garments construction in woolen, synthetic, cotton fabrics. One child's garment included.

17. Textiles. I, II. 3 hr. (2 lec., 1 lab.). Textile fibers and fabrics studied with view to their use in dress and in the home. Characteristics of the major fibers and their suitability to various uses. Study of standard and novelty materials with emphasis on appropriate use and care.

102. Clothing Selection. I. 2 hr. PR: H.E. 3 or consent. Two lectures. Selection of clothing for whole family from viewpoint of design, color, and economy. Clothing inventories and buying plans.

132. Clothing Techniques. II. 2 hr. Not open to home economics students. Techniques for simple garment construction, remodeling, alteration, and repair. Problems adapted to needs of individual students. Especially planned for Arts and Sciences students and young homemakers.

182. Problems in Clothing Construction. I, II. 1-4 hr. PR: Consent.

212. Advanced Clothing Construction. II. 2 hr. PR: H.E. 233 or consent. Offers opportunity for creative expression and for understanding of pattern design through handling of fabrics on dress form. Costumes are designed, draped and constructed.

222. Tailoring. II. 3 hr. PR: H.E. 12, 17. Tailoring of suits and coats. Emphasis placed on professional techniques, advanced fitting and construction of garments. Second garment constructed by fast method techniques.

282. Problems in Clothing. I, II. 1-4 hr. PR: Consent.

117. Textile Buying. II. 2 hr. PR: H.E. 17. Lecture and laboratory combined. Buying of textiles for all types of clothing and for the household. At least one field trip required.

187. Problems in Textiles. I, II. 1-4 hr.

217. Readings in Textiles. I. 2 hr. PR: H.E. 17. Review and discussion of current literature reporting recent research in the field.

287. Problems in Textiles. I, II. 1-4 hr. PR: Consent.

APPLIED ART

Instructor Baisden.

3. Introduction to Related Art. I, II. 2 hr. The use of the design elements and the application of the design principles to stimulate imagination and creative ability and to develop discriminating judgment in selection and arrangement of materials used for the individual and the home.

23. Housing Design. I, II. 3 hr. PR: H.E. 3 or consent. Housing and home planning as they relate to family living. Selection, arrangement, and use of the interior and exterior space for activities carried on, in, and around the home.

113. House Decoration. II. 3 hr. Not open to Home Economics students. (2 lec., 1 lab.). Materials and furnishings that go into decorating and furnishing a home, with emphasis on cost, buying, and reconditioning.

123. Interior Design. I, II. 3 hr. PR: H.E. 23 (2 lec., 1 lab.). The practical and aesthetic aspects of coordinating the furnishings, background, accessories, lighting, and space of a house for family living.

133. Craft Design. I, II. 2 hr. PR. H.E. 3 or Art 122. Creative design with emphasis on originality, design quality and the development of craft techniques in several of the following: stitchery, weaving, enameling, block printing, silk screening, batik, and other art media.

183. Problems in Related Art. I, II. 1-4 hr. PR: Consent.

233. Costume Design. I. 2 hr. PR: H.E. 2, 117. Techniques of figure and fashion drawing. Designing for individuals of various types and ages. Some history of costume included.

283. Problems in Related Art. I, II. 1-4 hr. PR: Consent.

CHILD DEVELOPMENT

Professor Brown; Assistant Professor Ayersman.

106. Child Development. I, II. 3 hr. PR: Psych. 1 or 3, or Ed. 105 or 106. (2 lec.). Child from toddler through the nursery-school age. University Nursery School used for observing pre-school children. 2 hr. per week of observation and participation.

116. Home Nursing. II. 2 hr. (1 lec., 1 2-hr. lab.). Practices to promote family health and care of minor illnesses. Offered 1964-65 and alternate years.

126. Infant Development. I. 2 hr. (1 lec., 1 lab.). Development characteristics and problems during the prenatal period and the first eighteen months with implications for guidance and care. Recommended to precede enrollment in H.E. 234.

186. Problems and Participation in Nursery School. II. 1-3 hr. PR: H.E. 106. Directed experience in working with children in a nursery school situation. Laboratory and conference.

206. Observation and Participation in Nursery School. II. 1-3 hr. PR: H.E. 106. Directed experience in working with children in a nursery school situation. Laboratory and conference.

266. Needs of Adolescents. I, II. 3 hr. A study of adolescent needs as met by the home with contributions of other agencies such as church, school, and youth groups. Physical, social, and integrative needs will be considered from the standpoint of needs of all family members as well as the individual.

276. Seminar in Child Development. II. 2 hr. PR: Senior standing and H.E. 106. A review and discussion of recent literature pertaining to child development. Offered in 1963-64 and alternate years.

286. Problems in Child Development. I, II. 1-4 hr. PR: Consent.

376. Thesis in Child Development. I, II, S. 6 hr. PR. H.E. 309 and consent. Thesis for the degree of Master of Science in Home Economics.

HOME MANAGEMENT AND FAMILY LIVING

Professor Nolan; Assistant Professor Taylor; Instructor Armstrong.

4. Elementary Management. I, II. 2 hr. The application of management to the use of time, money, energy, and other resources to achieve individual goals.

114. Management of Family Living. I, II. 3 hr. The contemporary setting of problems, values and goals in the area of family living with some attention to relevant antecedent factors in the mate selection process. Application of management principles to achieve greater competence in the material, parental, and teacher roles. Lecture, discussions, and audio-visual aids.

124. Demonstration Techniques. I, II. 2 hr. PR: Minimum of 4 hr. in each of four areas of home economics, or consent. Lecture demonstration as means of presentation of demonstrations suitable for secondary schools, and use with adult groups.

134. Principles of Home Management. I, II. 2 hr. An intermediate course in management as applied to the family and homemaking. Detailed consideration of family goals and resources.

184. Problems in Home Management and/or Family Living. I, II. 1-4 hr. PR: Consent.

214. Family Economics. I, II. 3 hr. PR: Senior or graduate standing. Management of the family's money resources. Consideration of the economic problems of families, of planned spending and saving, and of the role of the consumer. Open to non-majors.

224. Family and the Individual in the Community. I. 3 hr. PR: One course in the family, or Sociology, or consent. Social psychological analysis of the in-

dividual in the family and in other social systems. Involves the study of role relationships, community processes and attitudes and values as they affect the behavior of the individual.

234. Home Management Laboratory. I, II. 3 hr. PR: H.E. 15, 106, 114; H.E. 115 recommended. Arranged. A residence course designed to provide opportunity to apply management in a realistic homemaking situation, to develop satisfying relationships in a family-like atmosphere, and to use information and skills learned in other courses.

254. Household Equipment. I, II. 2 hr. Selection, arrangement, use and care of equipment for various situations and for different income levels. Laboratory and discussion.

264. Family Development. I, II. 3 hr. PR: H.E. 114 or consent. A professional course designed to prepare students for work with families in their varying stages of development and different socio-economic levels. Involves intensive study of family relationships as affected by differing stages of the family life cycle, from beginning family through the aging couple. Lecture, discussion, and observation of families. Open to non-majors.

284. Problems in Home Management and/or Family Life. I, II. 1-4 hr. PR: Consent.

HOME ECONOMICS EDUCATION

Professors Noer and Brown.

Ed. 262. Vocational Home Economics in Secondary Schools. I, II. 3 hr. PR: 6 hr. of Education and 30 hr. of home economics.

209. Evaluation in Home Economics. II. 3 hr. PR: 30 hr. of home economics, 7 hr. of Education. Experience in selecting, devising, and using evaluation devices for appraising student progress toward desired goals in home economics education.

219. Adult Education in Homemaking. I. 3 hr. PR: 30 hr. of home economics and 7 hr. of Education. Current trends and present activities. Organization of adult classes; development of unit outlines; consideration of teaching methods; illustrative material and bibliography.

249. History of Home Economics. I, II. 1 hr. One lecture.

279. Seminar in Home Economics Education. I. 2 hr. PR: Senior standing and 6 hr. of Education. A review and discussion of recent literature pertaining to home economics at the junior and senior high school levels and the college and adult levels.

309. Research Methods. I, II, S. 2 hr. Adaptation of research techniques to problems in home economics. For students writing problems or thesis. Must be taken at West Virginia University.

319. Home Economics Curriculum. II. 3 hr. PR: Experience in teaching home economics and consent. Selection and organization of learning experiences in home economics. Practices and techniques currently used for curriculum planning and reconstruction.

329. Supervision in Home Economics. II. 2 hr. PR: Teaching experience and consent. Designed for home economics teachers preparing to serve as supervising teachers in "off-campus" training centers. Function of supervision and organization of supervised teaching program. Techniques for helping students in training for teaching homemaking.

360. Problem Report for the Degree of Master of Home Economics. I, II, S. 1-3 hr. PR: H.E. 309.

389. Problems in Home Economics Education. I, II. 1-4 hr. PR: Consent.

HONORS PROGRAM

Professors Brown, Noer; Associate Professor Yearick.

100. Home Economics Honors Program. 3 hr. PR: Second-semester junior standing; at least 2 academic years in residence at West Virginia University; over-all grade-point average 3.0 or better; grade-point average in Home Economics courses 3.20 or better. Individual special problems for undergraduates of second-semester junior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission dependent only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

110. Home Economics Honors Program. 3 hr. PR: First-semester senior standing over-all grade-point average 3.0 or better; grade-point average in Home Economics courses 3.25 or better, and Home Economics 100. Individual special problems for undergraduates of first-semester senior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

120. Home Economics Honors Program. 3 hr. PR: Second-semester senior standing; over-all grade-point average 3.0 or better; grade-point average in Home Economics courses 3.25 or better; Home Economics 110. Individual special problems for undergraduates of second-semester senior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

The College of Arts and Sciences

GENERAL INFORMATION

ORGANIZATION AND PURPOSE

The College of Arts and Sciences includes a lower division and an upper division. The lower division consists of work of the first and second years, and the upper division consists of work of the third and fourth years.

Instruction in the College is administered through the following departments and integrated studies:

Art
Biology
Chemistry
Economics
English Language and Literature
Foreign Languages
Geology and Geography
History
Home Economics
Library Science
Mathematics and Astronomy
Nursing Education
Philosophy and Psychology
Physics
Political Science
Sociology
Social Work
Speech
Integrated Studies:
  Humanities
  Social Sciences
  Biological Sciences
  Physical Sciences

MAIN OBJECTIVES

The curriculum of the College of Arts and Sciences has these main objectives:

1. *General Culture.* Work of the lower division is intended to complete what is usually termed "a general education." It rounds out the program of studies pursued in high school and promotes full development of the student as an individual and as a member of society. Ideally, the student should undergo a well-proportioned development intellectually, spiritually, physically and emotionally. The end of such development should be an inner balance or stability on the basis of which further growth can take place. Development of the individual as a member of society is to be measured in terms of his or her usefulness and sense of responsibility to the social order. The student should develop the capacity of intellectual participation as a citizen in the community, state, country, and world. A general education should, therefore, provide for all students a meaningful experience appropriate to the individual and social needs which all citizens have in common as members of a free society in the contemporary world.

2. *Specific Attributes*: Most of the attributes of a general education can be placed in one of three categories: attitudes, areas of knowledge, and skills.

The following attitudes should be attained as a result of a general education:

(1) An attitude of tolerance or open-mindedness, characterized by a cosmopolitan outlook that will enable the student to see beyond the limits of his own profession, his own economic status, and his own country;
(2) An attitude of truth-seeking characterized by scientific objectivity and motivated by intellectual curiosity;
(3) An attitude of intelligent appreciation towards nature and the arts that will, as far as the student's own endowments will permit, help him in his esthetic and ethical choices; and
(4) An attitude of dispassionate self-appraisal, based on an understanding of his own nature and characterized by an awareness of his own mental strength and weakness.

The area of knowledge which should be common possession of all educated persons may be conveniently grouped into two divisions:

(1) A knowledge of man as a social and intellectual being, of his place in contemporary civilization, and of that civilization's place in the history of man.

(2) A knowledge of man as an organism and of man in his relation, direct or indirect, to the biological and physical environment in which he lives.

Three basic skills are regarded as indispensable to all educated persons:

(1) That of self-expression or communication, involving writing, speaking, reading, and listening.
(2) That of calculation, that is, a knowledge of, and some skills in, basic mathematics.
(3) A familiarity with at least one foreign language, not only as a useful skill, but also as a means of promoting tolerance and sympathetic understanding of peoples who do not speak our language.

BUILDINGS AND EQUIPMENT

The principal buildings used by the College of Arts and Sciences are the Physics Building, Woodburn Hall, Chemistry Building, Science Hall, Armstrong Hall, Brooks Hall, Reynolds Hall, and Oglebay Hall.

The central structure of the present Woodburn Hall was built in 1876, the north wing in 1900, and the south wing in 1910.

The Chemistry Building, a modern fireproof structure completed in 1926, houses the Department of Chemistry.

Armstrong Hall, a large four-story classroom building, was completed in the spring of 1950 and houses the Department of English and Department of Foreign Languages. Sociology, Social Work, and Library Science are housed in Engineering Building No. 1.

Brooks Hall, a modern five-story building, was put into service in the fall of 1950. It houses the Department of Biology and includes classrooms, laboratories, and excellent facilities for research work in the biological field.

The Physics Building was occupied in September, 1952. It is a six-story fireproof building, modern in every respect and equipped with machine shops, lecture rooms, and laboratories adapted to research in sound microwaves, atomic physics, and radioactivity. There is a special Radiation Laboratory on the second floor, open to all departments in the University interested in biophysics, biochemistry, agricultural chemistry, and medicine. This building also houses the Department of Mathematics.

COURSES RECOMMENDED

Two types of courses are recommended as common means for fostering the attributes of mind and character which a general education should develop in all students enrolled in the lower division of the College. They are:

1. Courses for the promotion of basic skills—calculation and communication.
2. General introductory courses for the elementary but organically integrated study of four fields of human knowledge—biological science, social science, physical science, and the humanities.

OPPORTUNITY FOR SPECIALIZATION

Work of the upper division is intended to provide intensive study in one or two fields of knowledge. It is based on the belief that an educated man or woman should not only know the fundamentals of several branches of study but should have a rather thorough knowledge of some selected field. In the upper division, therefore, the student concentrates on the major and one or two minors. The curriculum is sufficiently flexible, however, to meet the needs and tastes of individual students without at the same time exposing the student to the disadvantages of the free elective system.

SPECIAL PROVISIONS FOR THE JUNIOR CERTIFICATE

Experience has shown that students whose average in high-school subjects was below 75 per cent, or students who ranked in the lowest one-fourth of the high-school graduating class, probably will not succeed in the regular college cur-

riculum. Nevertheless, such students may, by wise selection of studies, profitably spend one or two years in college. Other students, for financial or other reasons, may not be able to attend college for more than one or two years. It is believed that students in either group may spend their time more profitably taking courses in which they are particularly interested from a cultural or vocational point of view than by following the curriculum leading to the A.B. Degree. Students who are not candidates for the A.B. Degree but who earn 64 hours of college credit and 128 grade points, including general University requirements, in residence at this College, will be awarded the Junior Certificate of the College of Arts and Sciences.

THE MAJOR SUBJECT

In the upper division the student concentrates on a major selected from the following list of subjects:

Art	German	Physics
Biology	History	Political Science
Botany	Home Economics	Psychology
Chemistry	Latin	Social Work
Economics	Library Science	Sociology
English	Mathematics	Spanish
French	Nursing Education	Speech
Geology	Philosophy	Zoology

Undergraduate Honors Program

Departments of the College of Arts and Sciences are permitted to establish undergraduate honors programs in conformity with the following provisions:

(a) *Admission to Honors.* Students admitted to honors will normally enter the honors program at the beginning of the second semester of the junior year.

(b) *Eligibility.* The principal qualification for admission to the honors program is ability to pursue independent academic work with vigor and imagination. A student will not qualify for admission to honors unless he has a cumulative grade-point average of at least 3.0 in all courses completed by the end of the fifth semester, and a grade-point average higher than 3.0 in the honor subject.

(c) *Program.* The heart of the honors curriculum is a coherent program of independent work, equal to a 3-hour course per semester, through the last three undergraduate semesters. Normally the honors work in the second semester of the junior year and first semester of the senior year will consist of independent reading or laboratory work, and the writing of reports. In his final undergraduate semester the student will prepare a thesis.

(d) *Examination.* Toward the end of the final undergraduate semester, the student must pass a comprehensive examination in the honors subject. The examination will ordinarily be written, though the Department may also require an oral examination.

Dean's List

The Dean of the College of Arts and Sciences will compile and release for publication through regularly prescribed University channels a list of those students who attained a grade-point average of 3.40 or higher on a total load of 14 or more credit hours at the end of each immediately preceding semester.

Classification of Students

To be classified as a freshman in the College of Arts and Sciences a student must have credit for at least 15 units of entrance requirements; to be classified as a sophomore he must have fulfilled all entrance requirements and have credit for 25 hours of college work; as a junior, 58 hours; as a senior, 92 hours.

Advisers

Lower Division. Each student in the lower division is assigned to an adviser who will assist in registration and who will have general supervision over the work of the student. Electives are chosen and changes in the program are made with the approval of the adviser. Students are urged to confer with advisers in respect to any difficulties or maladjustments in college life.

Upper Division. For transfer to the upper division a student must have completed a minimum of 58 hours and have maintained a grade-point average of 2.0 on all work for which he has received grades (except "W" and "WP").

Each student in the upper division is assigned to an adviser of the department to which the major subject belongs. The program of study and all changes in class assignments must be approved by the adviser.

Student Class Schedules

Each student will schedule his courses according to the curriculum he has chosen. A second-year student who has not completed all required courses listed in the first year of the curriculum that he is following will be required to schedule such courses before scheduling new courses. A student will not be registered for an upper-division course not provided in his lower-division curriculum unless he has satisfied all lower-division requirements or has scheduled the courses necessary to meet those requirements.

Withdrawal from scheduled classes will be permitted in an order reversed in priority from that stated in the preceding paragraph.

Maximum and Minimum Work

The maximum number of hours per semester for which a student may register is 18, the minimum is 14. A student in the upper-division may, however, with the approval of his adviser, register for a maximum of 20 hours per semester provided that during the semester immediately preceding his registration he has attained an average of 3.0 and that the load was not less than 14 hours.

Minimum Scholastic Standards

Normal progress toward upper-division status and graduation requires maintenance of a grade-point average of 2.0.

A student who receives a grade of "D" in any course during the terms or semesters in which he attempts his first 25 hours may repeat the course once during the next academic year in which he is enrolled. The second grade shall supersede the first if it is not lower than "D".

Probation and Suspension

Any student whose mid-semester grades are below passing in courses amounting to more than half of the total number of semester hours for which he is registered shall be placed on probation for the remainder of the semester. The terms of probation are determined by the scholarship committee.

Any student whose grades at the end of any registration period are below passing in courses amounting to more than half of the total number of semester hours for which he is registered shall be suspended from the University. A freshman subject to the operation of this rule at the end of his first registration period in residence shall be placed on probation for the succeeding registration period.

When any student falls 10 grade points or more below a 2.0 average, or when a lower-division student, after earning 58 semester hours, is ineligible to enter the upper division because his total grade-point average is less than 2.0, he shall be placed on probation and allowed a maximum of two semesters to reach a 2.0 average. If, while on probation, the student fails to show a reduction in his grade-point deficiency at the end of any semester or term, or if he fails to achieve a 2.0 average by the end of the second semester of his probationary period, he shall be suspended.

All actions of the Committee on Scholarship and the Dean that affect the standing of a student shall be reported by the Dean to the Registrar.

Attendance

1. Students shall attend all calsses, including laboratory sessions, for which they have enrolled, unless prevented from doing so by illness, injury, authorized University activities, or other reasons approved by the Dean.

2. A student enrolled in a course numbered under 100 shall be reported by the instructor to his adviser and his dean on an appropriate form as soon as his absences exceed the number of class meetings in a normal week.

3. A student whose absences in a course numbered under 100 exceed the number of class meetings in three normal weeks:

(a) shall again be reported to his adviser and to his dean; and

(b) may be barred from the final examination in the course by the instructor, except that the student is permitted to appeal the instructor's decision to the Dean of the College of Arts and Sciences, whose ruling shall be final.

4. Any student in an upper-division course shall be reported to his adviser and his dean as soon as his absences jeopardize his class standing.

5. The instructor may bar a student in an upper-division course from the final examination for excessive absences if:

(a) the student has been reported to his adviser and to his dean for excessive absences, and

(b) after being reported for excessive absences, his subsequent absences exceed the number of class meetings in a normal week, and

(c) the total number of absences exceeds the number of class periods in the course during three full weeks.

The student may appeal the instructor's decision to the Dean of the College of Arts and Sciences, whose decision shall be final.

6. A student who fails to attend a class meeting of a course after twice being reported for absences from it shall again be reported, and thereupon may be suspended from the University by the Dean of the College of Arts and Sciences.

7. Attendance rules shall apply equally, and separately, to lectures, quiz sections, discussion groups, and laboratory sessions.

8. A student who must be absent from class for an extended period of time shall inform his adviser or his dean.

DUTIES OF ADVISERS

All advisers, upon receipt of reports of excessive absences, shall have conferences with the student concerned and shall make such recommendations and adjustments as are desirable and feasible. If the adviser does not find a satisfactory solution after a conference with the student, he shall report the case to the Dean.

REQUIREMENTS FOR THE DEGREES

CREDIT DEFINED

The "semester hour" is the standard for computing the amount of work required for graduation in the curricula leading to the degrees. The "hour" represents the amount of work done in one semester (approximately 18 weeks) in one recitation hour with two preparation hours per week.

GENERAL REQUIREMENTS FOR ALL DEGREES

Foreign Language. Fewer than 6 hours in an ancient or modern language will not be counted towards any degree, diploma, or certificate in this College unless work in the same language has been offered for entrance.

English. Each undergraduate who is a candidate for an initial baccalaureate degree and who began college work after June 1, 1952, must pass a proficiency examination in English after the beginning of the junior year in order to qualify for graduation. (This examination, however, is not required of students of foreign countries whose native language is other than English.) He shall take the examination during the first semester of his junior year, and if not declared proficient, shall repeat the examination as many times as necessary. The examination shall be administered by the English Proficiency Board.

Electives. At least 6 hours must be taken in each subject offered as a free elective, but not more than 9 hours in isolated courses of less than 6 hours each, selected with the approval of the adviser, may be offered.

In addition to regular elective work in the College of Arts and Sciences which is offered by the faculties in the other colleges, work not to exceed 15 hours in the College of Law, College of Agriculture, Forestry, and Home Economics, College of Commerce, College of Engineering and the School of Mines, School of Music, School of Physical and Health Education, Recreation, and Safety, School of Journalism, or 6 hours of upper-division work in Military Science or Air Science, and 20 hours in the College of Education may be included in the list of elective credits offered by students in the College of Arts and Sciences. The total number of hours elected from other colleges shall not, however, exceed 24 hours in all.

The course in general biochemistry (Biochem. 239) is available (without additional fees) in the School of Medicine.

Major Subjects. A maximum of 42 hours in one subject (as listed on page 142) and, in those departments offering more than one subject, a maximum of 60 hours taken within the department may be counted toward the total academic hours required for graduation with the Bachelor of Arts degree.

ASSOCIATE IN ARTS DEGREE

The degree of Associate in Arts is conferred on the student who completes Option B of the regular course. The core of this program is in four introductory general courses: Humanities, Social Science, Biological Sciences, and Physical Sciences.

Students who complete satisfactorily three area courses, as well as the regular requirements in a foreign language, English composition, physical education general program, and military science or air science (men), will be considered to have met not only the general requirements of the University but also general (i.e., nondepartmental) requirements of the College of Arts and Sciences. Students who meet these requirements and have 64 hours of college credit and a grade-point average of 2.0 on all work in residence in the College of Arts and Sciences will be entitled to the two-year degree of Associate in Arts.

BACHELOR OF ARTS DEGREE

The Bachelor of Arts Degree in the College of Arts and Sciences is conferred upon any student who complies with the general regulations of the University concerning degrees, satisfies all entrance, college, and departmental requirements, and completes any one of the following courses of study:

I. Regular course
II. Premedical and Predental courses
III. Combined courses:
    (a) Arts and Dentistry
    (b) Arts and Medicine

In order to qualify for the degree of Bachelor of Arts in the College of Arts and Sciences, at least 128 semester hours of credit must be presented. A minimum of 124 hours must be established in subjects exclusive of credit earned in required Physical Education, required Military Science or Air Science, and English 0. (Math. 2, completed after Sept. 1, 1962, will not be included in the 124 hours.)

Students transferring to West Virginia University from other institutions should ordinarily do so not later than the beginning of the third year. Such students must meet all the requirements of the lower division. All lower-division deficiencies must be met as soon as possible after admission to the College of Arts and Sciences, whereupon such student may register officially in the upper division.

I. Regular Course (128 Hours)*

LOWER-DIVISION CURRICULUM

Option A:

(a) *General University Requirements:*
Military Science or Air Science[1]—8 hours.
Physical education (men)[2]—2 hours.
Physical education (women)[2]—4 hours.

(b) *Science.* At least 8 hours of a laboratory science chosen from the following: biology, botany, chemistry, geology, physical science, physics, psychology, and zoology.

(c) *Foreign Language.* To be eligible for graduation a student must have completed twelve semester hours in a foreign language in college or two units for entrance and six hours beyond courses 1 and 2 in the same language in college.

(d) *English Composition.* Ordinarily 6 hours of English composition (English 1 and 2) will be required of all freshmen. In case a freshman is not qualified to meet the requirements in English 1, as shown by placement or other tests, he (or she) will be assigned to English 0, which carries 3 hours of University credit. Upon the successful completion of the work in English 0, the student will register for the regular work in English 1 and English 2.

(e) *Distribution Requirements:* A selection of one subject from each of the following groups to total 24 hours is required. At least 12 hours shall be from lower-division courses.
  (1) At least 6 hours of History or of Humanities (general course).
  (2) At least 6 hours of Economics, of Political Science, or Social Science (general course).
  (3) At least 6 hours of Literature (from the English language or a foreign language) or of mathematics.
  (4) At least 3 hours of Art, of Home Economics, of Library Science, or of Speech.
  (5) At least 3 hours of Geography, of Philosophy, of Sociology, or of a laboratory science not chosen in (b) above.

(f) *Electives.* Electives shall be chosen, under the supervision of the adviser, to make a total of 64 hours. Ordinarily freshmen should register for required courses. Electives should be used in the second year chiefly in meeting the preliminary requirements of the departments in which the students expect to do work of the major (or minors) in the upper division.

Option B: General Course Program of Integrated Studies (64 Hours)

A sample schedule of courses for students enrolled in the whole program of Integrated Studies and planning to complete it in two years follows:

*See second paragraph under "Bachelor of Arts Degree," above.

[1]Military science or air science instruction is required of all male students except those who at the time of matriculation are 23 years of age or have completed no less than 58 hours of work, and all who have credit for 8 hours of military science or air science or 1 unit of entrance credit in military academy. Students must register for military science or air science upon their entrance into the University and continue in the course until the full requirement has been met or until a regular exemption card is filed in the Office of the Registrar.

[2]Two hours of physical education general program for men, to be taken during the first year of residence, and four hours of physical education general program for women, to be taken during the first and second years in residence, are required for graduation of students presenting fewer than 58 semester hours, unless previous credit has been allowed.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Humanities 1	4	Humanities 2	4
Biological or Physical Sciences 1	4	Biological or Physical Sciences	2-4
English 1	3	English 2	3
Foreign Language	3	Foreign Language	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Electives	1-3	Electives	1-3
Maximum hours allowed	18	Maximum hours allowed	18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Social Sci. 1	4	Social Sci. 2	4
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives[3]	11-13	Electives[3]	11-13
Maximum hours allowed	18	Maximum hours allowed	18

UPPER-DIVISION CURRICULUM

1. *A major sequence* of 18 to 24 hours of upper-division courses, preceded by the proper lower-division courses prescribed as preparation for the major. This work should represent a coherent and progressive sequence of courses as outlined in the departmental announcements. This major subject will be selected when the student registers in the upper division, but the student must plan the work in the lower division in such a way as will meet the departmental requirements for the major and minor.
2. *One or more minor sequences* in areas related to the major field may be required by the major department.
3. *Distribution Requirements* to complete a total of 24 hours if Option A was used in the Lower-Division Curriculum. See (e) page 146.
4. *Electives*, under supervision of the departmental adviser, to make a total of 128 hours. A minimum of 124 hours must be established in subjects exclusive of credits earned in required Physical Education, required Military Science or Air Science, and English 0. (Math. 2, completed after Sept. 1, 1962, will not be included in the 124 hours). At least 58 hours must be selected from the upper-division courses.

II. Premedical and Predental Courses (128 Hours)*

The following sequence of courses is worked out for the guidance of students who are preparing for the study of Medicine, Dentistry, and the related professions. All of the required subjects are included. While the pre-professional student is meeting the entrance requirements of professional schools, committees on admission of professional schools prefer that he use his elective hours to secure broad, general training rather than to secure a large number of credits in any one special field. Leading medical and dental educators in the United States today are definitely in favor of a good general training rather than exclusive specialization in the so-called premedical sciences.

*A total of 128 semester hours of which 124 semester hours must be exclusive of credit in required Physical Education, required Military Science or Air Science and English 0. (Math. 2, completed after Sept. 1, 1962, will not be included in the 124 hours.)

[3]Students who do not present two units in a foreign language for entrance and who complete six hours in the same language in college must use three hours of electives here to complete the language requirements. Students who expect to complete the four-year course for a baccalaureate degree should use electives to complete prerequisites for a major or minor field while in the lower division.

It is recommended that all premedical and predental students plan to complete the requirements for the Bachelor of Arts Degree.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Chem. 1	4	Chem. 2	4
Zool. 1	4	Zool. 2	4
Math. 3	3	Math. 4	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1 (M)	2	Elective (W)	2-3
Elective (W)	2-3	Mil. or Air Sci. 2 (M)	2
Maximum hours allowed	18	Maximum hours allowed	18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr*
Chem. 105 or 115	3-4	Chem. 115 or Psych. 1	3
Physics 1	4	Physics 2	4
Foreign language	3	Foreign language	3
Mil. or Air Sci. 3 (M)	2	Mil. or Air Sci. 4 (M)	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Group 1 elective	3	Group 1 elective	3
Group 4 elective	3	Group 4 elective	3
Maximum hours allowed	18	Maximum hours allowed	18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Group 2 elective	3	Group 2 elective	3
American or English Literature	3	American or English Literature	3
Chem. 163 or 233	4-5	Chem. 238 or elective	4-5
Zool. 231 or elective	5	Zool. 232 or elective	5
Maximum hours allowed	19	Maximum hours allowed	19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 163 or 233 or elective	4-5	Chem. 238 or elective	4-5
Zool. 231 or elective	5	Zool. 232 or elective	5
Electives	8-9	Electives	8-9
Maximum hours allowed	19	Maximum hours allowed	19

Many medical schools recommend that Chem. 233 and 238 and Zool. 231 and 232 be taken the year preceding entrance to medical school.

Candidates for the A.B. Degree in Premedicine or Predentistry must complete the following minimum number of credit hours in the subjects listed: English, 12 hr. (must include English 1 and 2 and 6 hr. of American or English literature); Foreign Language, 12 hr.; Mathematics, 6 hr. (must include Math. 3 and 4); Chemistry, 23 hr. (must include Chem. 1, 2, 115 or 106, 163, 233, 238 [105 also recommended]); Zoology, 18 hr. (must include Zool. 1 and 2 [Biol. 1 and 2 may be substituted], 231, 232); Physics, 8 hr.; Psychology, 3 hr.; Nonscience group, 30 hr. in addition to specific courses listed above (to be selected from Art, English, Humanities, Economics, Sociology, History, Political Science, Philosophy, Psychology, Speech, Foreign Language, Education, Latin, Home Economics, Music, Library

Science, Mathematics, Social Science.) The following Arts and Sciences group requirements must be included in the Nonscience group: Group 1 (6 hr. of History or 6 hr. of Humanities [general course]); Group 2, (6 hr. of Economics or 6 hr. of Political Science, or 6 hr. of Social Science [general course]); and Group 4 (3 hr. of Art or 3 hr. of Home Economics, or 3 hr. of Library Science, or 3 hr. of Speech). Arts and Sciences Groups 3 and 5 are included in specific departmental requirements. A minimum of 128 hours including 58 hours of upper-division courses are required for the degree.

III. Combined Courses

Special Requirements

Candidates for a combined A.B. degree (Premedicine or Predental) are required to meet the special provisions of one of the two groups listed below. These requirements are in addition to all other regulations prescribed in the particular curriculum for which the student is enrolled.

(a) A minimum of 96 hours of credit must be completed in the College of Arts and Sciences of West Virginia University of which 32 hours must be from the upper-division courses. If prior approval from the Scholarship Committee or the Dean of the College is obtained by formal petitioning at the time of acceptance into an accredited professional school or college, the successful completion of the first full year of the professional course may be offered in lieu of the senior work in residence. An official certification of the professional work must be made by the Registrar of the professional school to the University Registrar.

(b) A minimum of 64 hours of credits must be completed in the College of Arts and Sciences of West Virginia University of which 32 hours must be from the upper-division courses. If prior approval is obtained from the Scholarship Committee or the Dean of the College by formal petitioning at the time of acceptance into a professional school or college of West Virginia University, the successful completion of the first full year of professional work may be presented toward requirements for graduation.

Arts and Medicine or Dentistry (128 Hours)

(*Recommended Curriculum for a Combined Course in Arts and Medicine or Dentistry*)

Students who enter a School of Medicine or a School of Dentistry after the completion of a minimum of 107 hours (men) or 101 hours (women), of which 32 hours must be from the upper-division courses, of the premedical and predental curriculum and who have satisfied all provisions of the College of Arts and Sciences regulations governing combined course programs may receive the Bachelor of Arts Degree upon the successful completion of the first year of medicine or dentistry.

A student who is a candidate for the A.B. degree under the provisions of the curriculum must submit, at the time of his acceptance and prior to his registration in an accredited School of Medicine or School of Dentistry, a petition for the degree to his adviser who will forward it with his recommendations to the Scholarship Committee. If the petition is approved, the candidate will be recommended for graduation upon receipt of certification from the professional school by the Registrar of the University to the effect that he has successfully completed the first year of medicine or dentistry.

FIRST YEAR

Same courses as required in the Curriculum for A.B. degree in Premedicine or Predentistry.

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 115 or Psych. 1	3	Chem. 115 or Psych. 1	3
Physics 1	4	Physics 2	4
Foreign language	3	Foreign language	3
Mil. or Air Sci. 3 (M)	2	Mil or Air Sci. 4 (M)	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Hist. 1 or 52	3	Hist. 2 or 53	3
Art 115, Speech 11, or Pol. Sci. 1	3	Art 115, Speech 11, or Pol. Sci. 1	3
Maximum hours allowed	18	Maximum hours allowed	18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
American or English Literature	3	American or English Literature	3
Chem. 163	4	Pol. Sci. (upper division)	3
Chem. 233	4	Chem. 238	4-5
Zool. 231	5	Zool. 232	5
Maximum hours allowed	19	Maximum hours allowed	19

The following minimum number of credit hours must be completed in the courses listed: English, 12 hr. (must include English 1 and 2 and 6 hr. of American or English literature); Foreign Language, 12 hr.; Mathematics, 6 hr. (must include Math. 3 and 4); Chemistry, 23 hr. (must include Chemistry 1, 2, 115 or 106, 163, 233, 238); Zoology, 18 hr. (must include Zool. 1 and 2 [Biology 1 and 2 may be substituted], 231, 232); Physics, 8 hr.; Psychology, 3 hr.; Nonscience group, 15 hr. (must include Group 1, 6 hr. of History or 6 hr. of Humanities [general course]; Group 2, 6 hr. of Economics or 6 hr. of Political Science or 6 hr. of Social Science [general course]; and Group 4, 3 hr. of Art or 3 hr. of Home Economics or 3 hr. of Library Science or 3 hr. of Speech). Groups 3 and 5 of the College of Arts and Sciences requirements are included in specific departmental requirements.

Students in the Combined Course program are urged to attend at least one Summer Session.

BACHELOR OF SCIENCE

The Bachelor of Science Degree is conferred upon a student who complies with the general regulations of the University concerning degrees, satisfies all entrance and college requirements, and completes the requirements of one of the fields listed below.

The minimum credit requirement varies with the several departments offering programs leading to the Bachelor of Science Degree. The minimum requirement shall be no less than 128 hours in any area. A minimum of 124 hours must be established in subjects exclusive of credit earned in required Physical Education, required Military Science or Air Science, and English 0. (Math. 2, completed after September 1, 1962, will not be included in the 124 hours).

For all details of the course of study leading to the Bachelor of Science Degree, refer to the pages listed.

1. Chemistry (see page 166)
2. Geology (see page 190)
3. Nursing Education (see page 211)
4. Physics (see page 220)
5. Social Work (see page 230)
6. Speech Correction (see page 235)

A SECOND BACHELOR'S DEGREE

A student who has received a Bachelor's Degree in one department or college of West Virginia University may become eligible for a second Bachelor's Degree by earning an additional 30 semester hours in residence in the College of Arts and Sciences and meeting all requirements, departmental and otherwise, of the second Bachelor's Degree.

PRE-PROFESSIONAL COURSES

Not leading to degrees in the College of Arts and Sciences

(A). Pre-Commerce Curriculum

Candidates for the degree of Bachelor of Science in Business Administration and Bachelor of Science in Economics will register in the College of Arts and Sciences during their freshman and sophomore years. They will be transferred to the College of Commerce after completion of 58 semester hours of required and acceptable elective courses with a grade average of not less than "C".

The Pre-Commerce curriculum is as follows:

FRESHMAN YEAR		SOPHOMORE YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
English 1 and 2—Composition and Rhetoric	6	Acctg. 1 and 2—Principles of Acctg.	6
History 1 and 2—World Civilization or Humanities 1 and 2	6 or 8	Econ. 1 and 2—Principles of Econ.	6
Laboratory Science*	8	English 18—Advanced English Comp.	3
Mathematics 3—College Algebra	3	History 52—American History or Pol. Sci. 2—Amer. Federal System	3
Mil. or Air Science 1 and 2	4	Speech 11—Public Speaking	3
Phys. Ed.—General Program	2	Mil. or Air Science 3 and 4	4
Electives—Men	3 or 5	Phys. Ed.—Women's Gen. Program	2
Electives—Women	7 or 9	Electives—Men	6
		Electives—Women	8
Total	34	Total	31

*A laboratory science may be chosen from Biology, Botany, Chemistry, Geology, Physics, Physical Science, Psychology, or Zoology.

Students who select a foreign language as an elective must complete 6 hours in the same language at the University. Credit toward graduation is not allowed for English 0 or Mathematics 2. For further information see the *Announcements* of the College of Commerce.

(B). Pre-Education Curriculum

Candidates for the degree of Bachelor of Science in Secondary Education and Bachelor of Science in Elementary Education are registered in the College of Arts and Sciences until they have completed 58 hours or more of academic work in the lower division of the College, with a grade-point average of 2.0. They then transfer to the College of Education. During the Pre-Education period students are advised to complete as many as possible of the general courses required by the College of Education and for State certification, as shown in the bulletin *Teacher Training Programs—Requirements for Certification*, and/or the *Announcements* of the College of Education. These publications are available at the office of the Registrar.

In addition to the above general academic requirements, students preparing to teach in high school are advised to complete as many as possible of the required academic courses in two teaching fields. Those preparing to teach in the elementary school will follow directions applicable to that field.

Upon the successful completion of the entire 64 hours of work in the lower division, Pre-Education students are eligible for the Junior Certificate of the College of Arts and Sciences.

Teaching Certificates

The Dean of the College of Education is authorized by the Board of Governors to recommend all applicants for teaching certificates.

High-school teaching certificates may be obtained by students registered in the College of Arts and Sciences as well as in the College of Education, provided they meet the requirements for certification. To qualify for the elementary-school teaching certificate, the student will transfer to the College of Education at the beginning of the junior year.

For specific requirements in regard to certification see the bulletin *Teacher Training Programs—Requirements for Certification* and/or the *Announcements* of the College of Education. These publications are available at the Registrar's Office.

Candidates for the A.B. degree who wish to qualify for teaching certificates should indicate this fact to their adviser and plan their entire course with this in view. Unless this is done by the end of the freshman year, students may encounter difficulties in qualifying for the certificate by the time they receive their degree. As a check, consultation should be had each semester with Beatrice B. Law, Avery F. Gaskins, Mary C. Buswell, Robert B. Burrows, Robert L. Birch, Roy B. Clarkson, or Alan C. Donaldson, advisers of Pre-Education candidates for high-school teaching certificates; or Charles D. Neel, Leonard M. Davis, Willis Hertig, Sam Boyd, Jr., John Pushkarsh, Jr., or Donald T. Huffman, advisers of Pre-Education candidates for elementary-school teaching certificates.

(C). Pre-Journalism Curriculum

Candidates for the degree of Bachelor of Science in Journalism are registered in the College of Arts and Sciences until they have earned at least 58 semester hours of college credit. During the freshman and sophomore years they should consult the Pre-Journalism counselor and should complete all or most courses specified for pre-journalism majors.

A cumulative, better than "C" average (2.25), is required for admission to the professional school. If the student's average grade in English 1 and 2 is less than "B," he should register for English 13 during his sophomore year. Before or soon after entering the University a student planning to become a journalism major should learn the touch system of typing.

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3	Journ. 18	3	Journ. 19	3
Hist. 1 or Humanities 1	3-4	Hist. 2 or Humanities 2	3-4	Hist. 52	3	Hist. 53	3
Natural Science	4	Natural Science	4	Foreign Language (if needed)*	3	Foreign Language (if needed)*	3
Foreign Language*	3	Foreign Language*	3	English 6	3	English 4 or 164	3
Journ. 1	2	Journ. 2	1	Econ. 1	3	Econ. 2	3
Phys. Ed.	1	Phys. Ed.	1	Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2	Phys. Ed. (W)	1	Phys. Ed. (W)	1
Electives	0-1			Electives as needed	—	Electives as needed	—
Max. Hr.	18		18		18		18

*Optional for advertising majors, and journalism majors with agriculture, home economics or sciences specialization may substitute 12 credit hours of advanced work in their specialization.

(D). Pre-Nursing Curriculum

The pre-professional nursing curriculum is offered by the Department of Nursing Education to students interested in professional nursing as a career, and who plan to enter the collegiate school of nursing. The Pre-Nursing Curriculum is designed to provide two years of general college work consisting of subjects required in most of

the accredited collegiate schools and to stimulate and guide students in selection of courses in the physical and social sciences, in education and in the humanities as a basis for the basic professional nursing programs leading to the baccalaureate degree. Students are advised to select, as early as possible, the school of nursing they plan to enter, so that any specific requirements can be included in the requirement and elective hours provided. Experience has shown that students who fail to attain a minimum average of "C" may find it difficult to obtain admission to the school of nursing of their choice, or to any other collegiate school or hospital school of nursing.

Successful completion of this pre-nursing curriculum does not automatically guarantee acceptance as a candidate for admission to a school of nursing. Application for admission to a professional school must be made personally by the student.

The recommended Pre-Nursing Curriculum is:

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3	English (Lit.)	3	English (Lit.)	3
Chem. 1	4	Chem. 2	4	Sociol. 1	3	Sociol. 210	3
Zool. 1 or Biol 1	4	Zool. 2 or Biol. 2	4	Psych. 3	4	Psych. 122 or 125	3
*Elective	3	Elective	4-5	or Psych. 1	3	Educ. 105 or 106	3
Phys. Ed.	1	Phys. Ed.	1	Health Ed.	2	Elective	4
				Elective	3-5	Phys. Ed.	1
				Phys. Ed.	1		
	15		16-17		16-18		17

*Electives include subjects required by collegiate schools of nursing, such as speech, nutrition, bacteriology, history, and foreign language.

(E). Curriculum in Pre-Medical Technology

The curriculum which follows is designed to satisfy the course requirements for admission to the specialized and technical portion of the curriculum in Medical Technology offered by the School of Medicine.

Students are not transferred automatically from the pre-professional course (first two years) to the professional course (third and fourth years). Preference is given to residents of West Virginia. Application for admission to the third year should be made on forms obtainable from the Office of the Assistant Registrar, Medical Center. When completed, the forms are to be returned to his office.

Applications should be filed by February of the second year.

FIRST YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1, Inorganic	4	Chem. 2, Inorganic	4
English 1, Comp. & Rhetoric	3	English 2, Comp. & Rhetoric	3
Elective*	3	Math. 3	3
Biol. or Zool. 1, General	4	Biol. or Zool. 2, General	4
Mil. or Air Sci. 1 (M)	2	Mil. or Air Sci. 2 (M)	2
Phys. Educ.	1	Phys. Educ.	1
Med. Tech. 1**	1	Med. Tech. 2**	1
	16-18		16-18

*Electives: Students who plan to do graduate study should be encouraged to take foreign language as Elective.

Other recommended Electives are History 1, 2, 52, or 53; Sociology 1, and Psychology 1.

**Medical Technology 1, 2, 3, and 4 are not required subjects, but it is highly recommended that all students take these courses.

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233, Organic	4	Chem. 106, Quantitative	4
English or American Lit.	3	English or American Lit.	3
Elective*	3	Elective*	3
Physics 1, Introductory	4	Physics 2, Introductory	4
Mil. or Air. Sci. 3 (M)	2	Mil. or Air Sci. 4 (M)	2
Phys. Educ. (W)	1	Phys. Educ. (W)	1
Med. Tech. 3**	1	Med. Tech. 4**	1
	16-17		16-17

(F). Pre-Pharmacy Curriculum

The professional curriculum of the School of Pharmacy is based on two years of pre-pharmacy requirements. The pre-pharmacy requirements are as follows:

Algebra	3 hr.	Biology, General	6-8 hr.
Trigonometry	3 hr.	Chemistry, Quantitative	3 hr.
English Composition	6 hr.	Chemistry, Organic	8 hr.
Principles of Economics	3 hr.	Physics	8 hr.
Public Speaking	3 hr.	Electives to make 60 hours	
Chemistry, General	8 hr.		

The 60-hour requirement is exclusive of Military Science or Air Science, or Physical Education. In selecting electives, emphasis should be placed on the humanities and social sciences. A "C" average is considered the minimum standard for admission.

For admission to the School of Pharmacy, formal application should be made to the Admissions Committee of the School as early as possible after February 1 but before August 1, preceding the fall term in which the student is seeking enrollment. Complete information may be obtained from the Dean of the School of Pharmacy or from the Office of the Assistant Registrar, Medical Center.

COURSES OF INSTRUCTION AND CURRICULA

INTEGRATED STUDIES

Professor Crocker (Chairman); Instructors Alfred, Hoke, and Jones; and Interdepartmental Staff.

Integrated Studies covers four main areas of knowledge and certain basic skills. In the four principal fields of knowledge, courses cut across departmental lines as follows: (1) Humanities: history, foreign languages, English language and literature, speech, art, philosophy, and music; (2) Social Studies: political science, psychology, economics and business administration, sociology, and social work; (3) Biological Sciences: zoology, botany, biology, and psychology; (4) Physical Sciences: geology, geography, chemistry, physics, mathematics, and astronomy.

In the lower division, the four introductory general courses provide a general knowledge of subjects not covered by the student's field of major interest and a perspective for later concentration in certain fields. These courses, are, in addition, recommended for the student who has not chosen a field of specialization. The student will have through these introductions to the main bodies of knowledge an opportunity to discover his real interests and aptitudes for more advanced study.

In the upper division, courses are offered that continue at an advanced level the study of important ideas and concepts in the various fields of learning. A deliberate attempt is made to secure in these courses an integrated understanding of a particular subject and its important connections with related fields. These courses frequently consider problems not encountered in sharply defined departmental or specialized courses, and they provide the student with important cross-connections between established disciplines.

Courses of Instruction

I. THE HUMANITIES

1, 2. Introductory General Course. I, II. 4 hr. per sem. This course is designed to bring to the student's attention cross sections of his civilization at those points where its development has been most significant. In accordance with this aim a substantial part of the course is its background of history, to which are added a survey of world literature, enough philosophy to acquaint the student with the main currents of Western thought, the principal developments in art and architecture, and some music. A constant attempt is made in the lectures and discussions to relate the past to the present, and to show the continuity of what we call Western Civilization.

The assigned readings are an important feature of the course, in that they supply much of the factual material. Lectures are primarily for the purpose of orientation—to help the student interpret the reading. Lectures on art, architecture, and music are illustrated. Weekly discussion periods are also an important part of the course. In them, students meet in small groups with an instructor, and an effort is made to help them understand the relations of the past to present-day problems. Through the aid of a syllabus, the course is shown in perspective in order that it may be better conceived as a whole.

Mr. Manning and Staff

141. Great Books. (First Course). I. 3 hr. Five literary masterpieces in translation are considered in this course: Plato's *Republic,* Sophocles' *Oedipus Rex* and *Antigone,* Dante's *Divine Comedy,* Cervantes' *Don Quixote,* and Goethe's *Faust.* Taken separately and in order they represent the Greek world, the Middle Ages, the Renaissance and the Modern period. Taken as a group they illustrate the persistent conflict between the actual and the ideal in the literature of Western Civilization. Mr. Stasny

142. Great Books. (Second Course). II. 3 hr. Five literary masterpieces, of which four are in translation, are considered in this course: Marcus Aurelius' *Meditations,* Benvenuto Cellini's *Memoirs,* Montaigne's *Essays,* Rousseau's *Confessions,* and *The Education of Henry Adams.* These evaluations of the problems of life, ranging from the Roman Empire to modern America, constitute the integrating principle of the course. Mr. Stasny

181, 182. American Civilization. I, II. 3 hr. per sem. This course is designed to acquaint the student with the salient characteristics of American Civilization as they have developed since the planting of European colonies on this continent. Emphasis is placed on the unique contributions of successive arrivals on American shores to the making of the distinctive American culture, as evidenced in its folkways, arts, and philosophy. The central theme of the course is the manifestation of the democratic spirit in the thought and feelings of the American people. The course is open to all upper-division students.

Mr. Davis

250. University Summer Tour of Europe. Summer 1963. 6 hr. PR: Some cultural background in European civilization such as Humanities 1 and 2, Hist. 1 and 2, or equiv. Staff

270. Cradle of History Tour of the Near East. Summer 1963. 6 hr. PR: Hist. 1 and 2 or Humanities 1 and 2, or equiv. Staff

II. THE SOCIAL SCIENCES

1, 2. Introductory General Course. I, II. 4 hr. per sem. The general course in social science aids the student in his preparation for citizenship by advancing his understanding of the social order. Major attention is given to an analysis of economic, political, and other social conditions now existing in the United States. A brief analysis of the place of this country in world affairs is included. The course is organized on the basis of two lectures and two discussion periods each week. Mr. Gibbard and Staff

III. THE BIOLOGICAL SCIENCES

1, 2. Introductory General Course. I, II. 4 hr. per sem. Primarily for the student who is not a major in biology, the Introductory General Course deals with the basic values of biology in relation to civilization and modern culture. The course considers the organization and functions of living organisms in general, as well as the relations between these organisms and the connection with their physical environment, but emphasis throughout is placed on the importance of the human being and his relationships with other organisms.

Individual student participation is encouraged in discussion periods and in the laboratory where subject matter may require some group work with equipment and specimens. Lectures are amplified by moving pictures and by demonstrations. (*This course is identical with Biology* 1 *and* 2, *General Biology*). Staff

207. History of Biology. I. 3 hr. PR: 1 yr. of biology or equiv. This course deals with the landmarks in the history of the development of biological knowledge. Relatively intensive studies are made of the biographies of outstanding biologists as examples of their periods. Mr. Core

208. Great Texts in Biology. II. 1 hr. PR: Biol. 2 or equiv. A study of some of the great classics in biology, such as Theophrastus' *Enquiry into Plants,* Vesalius' *Epitome,* Harvey's *Motion of the Heart and Blood,* Darwin's *Origin of Species,* and Mendel's *Experiments on Hybrid Plants.* The course is designed to acquaint the student with the historical and philosophical background of modern biology and to show how the utilization of the scientific method has resulted in the great biological discoveries. Mr. Core

IV. THE PHYSICAL SCIENCES

1, 2. Introductory General Course. I, II. 4 hr. per sem. The Introductory Course in Physical Science is intended to acquaint the student with the physical world in which he lives. The course has two main objectives: to serve as an orientation course for those students who have not chosen their major field of interest, and to present a broad general view of the physical sciences to students whose interests lie in other fields.

Two periods each week are devoted to formal lectures and desk demonstrations; one period a week is used for discussion and quiz in small groups; and one period a week is devoted to laboratory experimentation and field trips. The course is designed to give a general view of the whole field of the physical sciences.

Students who have successfully completed eight hours of a laboratory science in one of the physical science fields (physics, chemistry, geology) can not take Physical Science 1 and 2 for credit. Mr. Hickman and Staff

200. Workshop in Physical Sciences. I. 2 hr. PR: 12 hr. of course work in physical sciences. Designed for secondary school teachers of science. Graduate credit limited to teachers and prospective teachers. Staff

201. Physical Science for High School Teachers. I, S. 3 hr. Physical Science Teachers. The course includes: lecture demonstration and laboratory techniques, a study of demonstration and laboratory equipment suitable for high schools, and a review of modern developments in the physical sciences. Mr. Hickman and Staff

202. Physical Science for High School Teachers. II, S. 3 hr. PR: Phys. Sci. 201 or equiv. An extension of Phys. Sci. 201 to additional topics of interest to the high school teacher, such as applied organic chemistry and radio. This is the terminal course in integrated physical science for high school teachers. Mr. Hickman and Staff

221. Scientific Literature. I. 3 hr. PR: 20 hr. work in physical and/or biological sciences. Graduate study methods, evaluation of literature sources, methods of conducting a literature survey, reporting work in written and oral form. Open only to N.S.F. Institute members. Mr. Hickman

223. Physical Science Measurements. I. 3 hr. PR: 20 hr. work in Physical Science. Lecture and laboratory work in the use of the instruments employed in physical science measurements. A considerable portion of the course is devoted to a review of the necessary mathematical background. Open only to N.S.F. Institute members. Mr. Farr

ART

Professors Clarkson and Patton; Assistant Professors Drainer and Freedman; Instructors Aull and Moss.

The Department of Art offers technical courses in drawing, painting, and design; a nontechnical course in appreciation; courses in art education; and lecture courses in the history of the arts. Effort is made to provide the needs of those interested in the cultural aspects of the arts, to meet the requirements of students planning further work of a technical nature, and to enable students in Education to meet requirements for certification as art teachers.

The following program is recommended for art majors:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Laboratory sci.	4	Laboratory sci.	4
Art 11	3	Art 12	3
Mil. or Air Sci. 1	2	Art 30	2
Phys. Ed.	1	Mil. or Air Sci. 2	2
		Phys. Ed.	1
Elective to make	18	Elective to make	18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Art 121	3	Art 122	3
Elect. Group 1	3-4	Elect. Group 1	3-4
Elect. Group 2	3-4	Elect. Group 2	3-4
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed.	1	Phys Ed.	1
Elective to make	17-18	Elective to make	17-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Art 113	3	Art 114	3
Art 105	3	Art 106	3
English 18 or 21	3	Upper Division elect. Group 3	3
Upper Division elect. Group 3	3	Upper Division elect. Group 5	3-4
Elective	6	Elective	4
	18		16-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Art elective	3	Art elective	3
Minor sequence (upper div.)	4-6	Minor sequence (upper div.)	4-6
Elective to make	18	Elective to make	18

Courses of Instruction

1. Creative Expression in Fine Arts. I, II, S. 2 hr. Primarily for Elementary Education majors. An exploratory course designed to familiarize the student with the possibilities of creative expression through graphic media; to acquaint the student with the advantages and limitations of the various media; and to investigate the adaptability of these to use at various grade levels. Miss Drainer and Staff
2. Creative Expression in the Applied Arts. I, II, S. 2 hr. A course similar to Art 1 but employing materials such as clay, plasteline, paper, felt, gasso, plaster, and the like, as a means of creative expression. Miss Drainer and Staff

11 or 111, 12 or 112. Drawing. I, II. 3 hr. per sem. Freehand drawing in pencil and charcoal. Staff

30. Appreciation of the Fine Arts. I or II. 2 hr. A study of outstanding works of art from times past as well as from the present day. Topics treated include: the materials with which the artist works; sources of the art impulse; and the relation of art to the civilization producing it. Mr. Clarkson and Staff

105, 106. Survey of Art. I, II. 3 hr. per sem. History of art from prehistoric times to the present. Mr. Patton

113, 114. Painting. I, II. 3 hr. PR: Art 11, 12. Beginning watercolor and oil. Staff

115. Scientific Drawing. I, II. 3 hr. Freehand drawing primarily for premedical and predental students. Staff

117, 118. Painting. I, II. 3 hr. PR: Art 113, 114. Second semester watercolor and oil. Messrs. Patton, Clarkson, Freedman, and Moss

121, 122. Fundamentals of Design. I, II. 3 hr. per sem. Mr. Clarkson

123. Lettering. I or II. 2 hr. Principles of design involved in lettering and their application. Mr. Patton

126. Modeling. I, II. 2 hr. PR: Consent. Introductory course in sculpture. Mrs. Aull

130. Appreciation of the Arts. I or II. 3 hr. Increasing the student's understanding and enjoyment of the arts; analytical study of selected examples of painting, sculpture, and architecture together with sufficient illustrations from music and poetry to make clear the basic unity of the arts. Mr. Patton

151, 152. Special Problems. I, II. 1-3 hr. per sem. Staff

211. Figure Drawing. I, II, S. 3 hr. PR: Art 11 or 111, 12 or 112, and/or consent. Study of the construction of the figure. Drawing from the draped and partially draped model. Mr. Freedman and Staff

213. Painting. I, S. 3 hr. PR: Art 113, 117, and consent. First semester advanced watercolor. Messrs. Clarkson, Freedman, and Moss

214. Painting. I, II, S. 3 hr. PR: Art 213 and consent. Second semester advanced oil painting. Messrs. Clarkson, Freedman, and Moss

216. Painting. II, S. 3 hr. PR: Art 114, 118, and consent. First semester advanced oil painting. Messrs. Clarkson, Freedman, and Moss

217. Painting. I, II, S. 3 hr. PR: Art 216 and consent. Second semester advanced oil painting. Messrs. Clarkson, Freedman, and Moss

220. Art and the Schools. I, II, S. 2 hr. PR: 4 hr. of art, including a minimum of 2 hr. studio. Miss Drainer

221. Administration and Supervision of Art. I, II, S. 2 hr. PR: Art 220. Mainly for administrators and school principals who wish to become informed about art programs and the philosophies underlying them. Miss Drainer

225. Secondary School Art. I or II, S. 3 hr. PR: Art 11 or 111, 12 or 112, 121, 122, 113, 114, and consent. Information and working skills desirable for the teaching of art on the secondary school level. Mr. Moss and Staff

241. Medieval Architecture. I, II, S. 3 hr. PR: Art 105, 106. A study of architecture from time of Constantine to the Renaissance. Mr. Patton

250. Renaissance Painting. I, II, S. 3 hr. PR: Art 105, 106. A study of painting in Italy from Cimebue to Tiepolo; the Renaissance in Western Europe; a brief consideration of baroque and rococo painting as outgrowth of the Renaissance. Messrs. Patton, Clarkson, and Freedman

260. Modern Painting. II, S. 3 hr. PR: Art 105, 106. Developments in painting from the French Revolution to the present day. Messrs. Patton, Clarkson, and Freedman

271. American Architecture. I, II, S. 3 hr. PR: Art 105, 106. Developments in architecture in North America from Pre-Columbian times to the present day. Emphasis will be placed on the architecture of the United States. Mr. Patton

290. Study of Original Works of Art. S. 6 hr. PR: Art 105, 106, and consent of the Department. Directed study in the museums and libraries of some urban center such as Washington or New York; a study of the architectural developments of the locality. Messrs. Clarkson, Patton, and Staff

350, 351. Special Topics. I, II, S. 1-3 hr. per sem. PR: Consent of the Department. Individual study to be determined by the student's requirements. Staff

391, 392. Thesis. I, II, S. 3 hr. per sem. PR: Approval of Student's Committee. Staff

BIOLOGY

Professors Core, Bennett, Gribble, and Norman; Associate Professors Canaris, (on contract to Egerton College, Njoro, Kenya), Clovis, and Tolbert; Assistant Professors Baer, Bradshaw, and Clarkson; Instructors Barnett, Benson, Birch, Coover, Guthrie, Hertig, Johnson, Montiegel, and Williams.

Students may select biology, botany, or zoology as their major subject. Biology 1 and 2 or Botany 1 and 2 will be required of students who wish to major in botany. Either Biology 1 and 2 or Zoology 1 and 2 will be required of students who elect to major in zoology. Majors in biology should take Biology 1 and 2.

Prospective majors in biology, botany, or zoology should include in their schedule of lower-division work Chemistry 1 and 2. Prospective majors in zoology should also include Chemistry 115 in the lower-division schedule.

Courses in botany and zoology (not to exceed 10 semester hours in each) may be counted toward a major in biology, provided that the student has a minimum of 6 semester hours in upper-division courses in biology.

Teacher Certification for Biology Majors

A student may meet the requirements for the A.B. degree with a major in Biology and at the same time qualify for teacher certification. The curriculum suggested above is designed to include the requirements of the basic subjects prescribed for the first two years for prospective teachers. During the junior and senior years the courses required in the major and minor subjects will largely coincide with those required for first and second teaching field for high school teachers. At the same time they will complete the required work in Education in the teacher-training program.

Curriculum for A.B. Degree With Major in Biology

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3	Chem. 1	4	Chem. 2	4
Hist. 1	3	Hist. 2	3	Social Sci. 1	4	Social Sci. 2	4
Biol. 1	4	Biol. 2	4	Foreign language	3	Foreign language	3
Foreign language	3	Foreign language	3	Educ. 105	3	Educ. 106	3
Phys. Ed. 1 (M)	1	Phys. Ed. 2 (M)	1	Music 10	2	Art 130	3
Phys. Ed. 3 (W)	1	Phys. Ed. 4-25 (W)	1	Phys. Ed. 101 (W)	1	Phys. Ed. 102 (W)	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2	Mil. or Air Sci. 3	2	Mil. or Air Sci. 4 (M)	2
	Women—14 Men—16		Women—14 Men—16		Women—17 Men—18		Women—18 Men—19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Physics 1	4	Physics 2	4
English 3, 4, 5, or 6	3	Math. 4	3
Chem. 106	4	Bacteriol. 141	4
Math. 3	3	Zool. 171	4
English 18	3	Health Ed. 101	2
Educ. 109	2		
	19		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Biol. 221	3	Educ. 124	6
Chem. 233	4	Educ. 150	2
Botany elective	4	Educ. 120	4
Zool. 251	4	Bot. 104	4
Biology elective	3-5	Chem. 238	4
	18-20		20

Curriculum for A.B. Degree With Major in Botany

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Bot. 1 or Biol. 1	4	Bot. 2 or Biol. 2	4
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Group 3 elective	3	Group 3 elective	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Elective	2	Elective 2	2
	16-18		16-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Mil. or Air Sci. 4	2	Mil. or Air Sci. 4	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Physics 1	4	Physics 2	4
Chem. 1	4	Chem. 2	4
Group 1 elective	3-4	Group 1 elective	3-4
	16-18		16-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Group 2 elective (lower div.)	3	Group 2 elective	3
Group 4 elective (lower div.)	3	Chem. 115	3
Group 5 elective (upper div.)	3	Genetics 221	3
Botany (or elect.) (upper div.)	7-9	Botany (or elect.) (upper div.)	7-9
	16-18		16-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233	4	Chem. 238	4
Botany (or elect.) (upper div.)	12-14	Botany (or elect.) (upper div.)	12-14
	16-18		16-18

Curriculum for A.B. Degree With Major in Zoology

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Zool. 1 or Biol. 1	4	Zool. 2 or Biol. 2	4
English 1	3	English 2	3
Chem. 1	4	Chem. 2	4
Math. 3	3	Math. 4	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Art 115	3	Chem. 115	3
Physics 1	4	Physics 2	4
Foreign language	3	Foreign language	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Group 1 elect.	3-4	Group 1 elect.	3-4
Electives	2-4	Electives	2-4
	18		18

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Group 2 elective	3	Group 2 elective	3	Chem. 163	4	Zool. 232	5
Chem. 233	4	Foreign language	3	Zool. 231	5	Zool. 274	4
Foreign language	3	Botany	4	Electives (upper division)	4	Electives (upper division)	7-9
Botany	4	Chem. 238	4	Zool. 273	4		
Zool. 251	4	Electives (upper division)	3-5				
	18		18		18		18

Candidates for the A.B. degree in Zoology must complete the following minimum number of credit hours in the subjects listed in addition to the University and College of Arts and Sciences general requirements: Mathematics, 6 hr. (must include Math. 3 and 4); Chemistry, 23 hr. (must include Chem. 1, 2, 115, 163, 233, 238); Physics, 8 hr.; Art 115; Biological Sciences, 38 hr. (must include Zool. 1 and 2 [Biol. 1 and 2 may be substituted], Zool. 231, 232, 251, 273, and 274, and 8 hr. of botany). A total of 128 semester hours is necessary for this degree, of which 124 hours are in subjects exclusive of required Military Science or Air Science, required Physical Education, and English 0. A minimum of 58 upper-division hours is also necessary.

Courses of Instruction

BIOLOGY

Lower Division

1, 2. General Biology. I, II. 4 hr. per sem. General introductory course in Biology. Staff

51. Microbiology. I. 3 hr. An introduction to the study of microorganisms. Primarily for medical secretary students. Mr. Bennett

Upper Division

191. Honors Course. II. 3 hr. PR: Second semester of junior year, recommendation of adviser. For departmental majors only. Supervised reading and investigation. Staff

192. Honors Course. I. 3 hr. PR: Biol. 191. Supervised reading and investigation. Staff

193. Honors Course. II. 3 hr. PR: Biol. 192. A thesis embodying the results of the work done in Biol. 191 and 192. Staff

203. Natural History. S. 3 hr. PR: General biology or equiv. Lectures, demonstrations, and field trips designed to provide a brief survey of certain aspects of general biology suitable for elementary and high schools. Mr. Benson

204. Biology Workshop. S. 3 hr. PR: Biol. 2 or equiv. Primarily for high school teachers of biology. Lectures, discussions, and trips to various campus facilities are designed to meet the needs of the students enrolled. (Not open to majors in biology or to students having credit for Biol. 201 or 202). Mr. Tolbert

205. Principles of Evolution. I, S. 3 hr. PR: Biol. 2, Bot. 2, or Zool. 2. An introduction to the study of evolution. Mr. Bennett

206. Modern Concepts in Biology. I, S. 2 hr. PR: Biol. 2 or equiv. A course designed to acquaint the advanced student or teacher with the latest methods and knowledge in the field of biology. Mr. Clovis

207. History of Biology. I. 3 hr. PR: Biol. 2. History of the development of biological knowledge, with philosophical and social backgrounds. Mr. Core

208. Great Texts of Biology. II. 1 hr. PR: Biol. 2 or equiv. A study of some of the great classics in biology, such as Theophrastus' *Enquiry Into Plants*, Vesalius' *Epitome*, Harvey's *Motion of the Heart and Blood*, Darwin's *Origin of Species*, and Mendel's *Experiments on Hybrid Plants*. Mr. Core

209. The Literature of Biology. I. 1 hr. PR: Biol. 2 or equiv. A consideration of the sources and forms of the literature, the development of bibliographies, and the preparation of scientific papers. Mr. Coover

210. Biological Science for High School Teachers. II. 2 hr.; S. 3 hr. PR: Biol. 2 or equiv. A study of biological demonstrations and experiments suitable for high school biology. Mr. Clovis

211. Microtechnique. I. 3 hr. PR: Biol. 2, Bot. 2, or Zool. 2, or equiv. Theory and practice of making microscope preparations. Mr. Clovis

212. Biological Preparations. S. 3 hr. PR: Biol. 1. Methods for the preparation of microscope slides and other demonstration materials for high school biology classes. Emphasis will be on procedure using equipment and reagents commonly available to the teacher. Mr. Clovis

215. Cytology. II. 4 hr. PR: Biol. 2 or equiv. Cells, their structure and functions. Mr. Bennett

221. General Ecology. I, II. 4 hr. PR: Biol. 1-2 or equiv., plus 4 hr. upper division. The interactions among and the intra-actions within biotic communities are emphasized as the inter-relationships of animals with one another and with their environment are studied to illustrate basic ecological concepts and unifying principles. Mr. Bradshaw

Graduate Division

301, 302. Seminar. I, II. 1 hr. per sem. Topics of interest to all biologists are considered. All members of the staff and graduate students contribute by the presentation of a report on some scientific activity. Required of all graduate students. Staff members and students in other departments are invited to attend. Staff

311. Advanced Microtechnique. II. 1-3 hr. PR: Consent. Mr. Clovis

321, 322. Seminar in Ecology. I, II. 2 hr. per sem. PR: Bot. 221 or Zool. 221 and consent. Selected topics on relations of organisms to environment and on communities of organisms. Staff

376, 377. Seminar in Physiology. I, II. 2 hr. per sem. PR: Biol. 274, Bot. 273, Zool. 271, or Plant Path. 330, and consent. Selected topics on functions common to all organisms. Staff

BOTANY

Lower Division

1, 2. General Botany. I, II. 4 hr. per sem. Introductory course in botany. Mr. Tolbert

61. Systematic Botany. I. 2 hr. Identification of vascular plants. Primarily for students in Forestry. Mr. Clovis

67. Dendrology. I. 3 hr. PR: Biol. 2. Classification and distribution of the timber trees of the United States. Primarily for students in Forestry. Mr. Core and Mr. Guthrie

68. Dendrology. II. 2 hr. Continuation of Bot. 67. Mr. Core and Mr. Guthrie

Upper Division

104. The Plant Kingdom. II. 4 hr. A survey of the plant kingdom. Mr. Clarkson

161. Systematic Botany. II. 4 hr. The identification and classification of vascular plants. Mr. Clovis

171. Plant Physiology. I, II. 3 hr. PR: Inorganic chemistry. Physicochemical processes of plants. Mr. Baer

191. Honors Course. II. 3 hr. PR: Second sem. of junior year and recommendation by adviser. For departmental majors only. Supervised reading and investigation. Staff

192. Honors Course. I. 3 hr. PR: Bot. 191. Supervised reading and investigation. Staff

193. Honors Course. II. 3 hr. PR: Bot. 192. A thesis embodying the results of the work done in Bot. 191 and 192. Staff

218. Economic Botany. II. 3 hr. PR: Biol. 2 or Bot. 2. Plants from the standpoint of their value to man. Mr. Clarkson

221. Plant Ecology. I. 4 hr. PR: Biol. 2 or Bot. 2. Environmental relationships of plants. Mr. Baer

224. Plant Communities. S. 3 hr. PR: Biol. 2 or equiv. Field studies in ecology. Mr. Bennett

227. Geographic Botany. I, S. 2 or 3 hr. PR: Bot. 2 or Biol. 2. Study of plant groupings and world-wide distribution of plants. Mr. Core

231. Plant Morphology. I. 4 hr. PR: Biol. or Bot. 2. Development and structure of algae and fungi. Offered in 1963-64 and alternate years. Mr. Bennett

232. Plant Morphology. II. 4 hr. PR: Biol. 2 or Bot. 2. Development and structure of bryophytes and vascular plants. Offered in 1963-64 and alternate years. Mr. Bennett

235. Plant Anatomy. I. 4 hr. PR: Bot. 2 or equiv. Anatomy of seed plants. Mr. Tolbert

250. Fresh-Water Algae. I. 4 hr. PR: Biol. 2 or equiv. Taxonomy, cytology, and ecology of aquatic, aerial, and land forms of fresh-water algae. Offered in 1964-65 and alternate years. Mr. Bennett

255. Bryophytes. II. 2 hr. PR: Bot. 2 or Biol. 2. Identification of liverworts and mosses. Offered in 1964-65 and alternate years. Mr. Clovis

256. Vascular Cryptogams. II. 4 hr. PR: Bot. 1, 2 or Biol. 1, 2. Taxonomy, anatomy, cytology, and ecology of the club mosses, horsetails, and ferns. Offered in 1964-65 and alternate years. Mr. Bennett

261. Advanced Systematic Botany. I. 3 hr. PR: Bot. 161 or equiv. Taxonomy of pteridophytes, gymnosperms, and monocotyledons. Mr. Clovis

262. Advanced Systematic Botany. II. 3 hr. PR: Bot. 161 or equiv. Taxonomy of dicotyledons. Mr. Clovis

263. Taxonomy of Vascular Plants. S. 3 hr. Field studies in the taxonomy of higher plants. Mr. Bennett

265. Aquatic Seed Plants. I. 3 hr. PR: Biol. 2 or equiv. Classification, ecology, and economic importance of aquatic seed plants. Offered in 1963-64 and alternate years. Mr. Bennett

266. Flora of West Virginia. II, S. 3 hr. PR: Biol. 2 or equiv. A consideration of the native plant life of the State. Mr. Core

296, 297. Special Topics. I, II. 1-4 hr. per sem. PR: Consent. Critical studies of topics to be assigned by the instructor. Staff

Graduate Division

316. Cytotaxonomy. I. 3 hr. PR: Bot. 2 or Biol. 2 and consent. The determination of phylogenetic relationships by cytological and taxonomic methods. Offered in 1963-64 and alternate years. Mr. Bennett

325. Experimental Ecology. II. 2-4 hr. PR: Biol. 1, Bot. 161, and Bot. 221 or equiv. Experiments on environmental relations of plants. Mr. Baer

331. Plant Embryology. I. 2 hr. PR: Biol. 2 or Bot. 2 and consent. Gametogenesis, syngamy, and embryo development in vascular plants. Offered in 1964-65 and alternate years. Mr. Bennett

351, 352. Problems in Plant Taxonomy. I, II. 1-6 hr. PR: Bot. 261, 262, or equiv. Staff

368. Agrostology. II. 2 hr. PR: Bot. 161 or equiv. Taxonomy of grasses. Mr. Clovis

374. Advanced Plant Physiology II. 3 hr. PR: Bot. 171 or consent. Advanced studies of plant processes and physiological experimentation. Mr. Baer

391, 392, 393, 394. Research. I, II. 1-6 hr. Staff

ZOOLOGY

Lower Division

1, 2. General Zoology. I, II. 4 hr. Combines a study of the chief groups of animals in evolutionary sequence with introductions to other zoological subjects, including cytology, physiology, biochemistry, genetics, embryogeny, and ecology. Primarily for preprofessional students in medical and allied disciplines and for those whose major interests are animals. Students having credit for Biol. 1 and 2 may not receive credit for this course. Staff

31. Human Anatomy. I. 4 hr. PR: Consent. Elementary anatomy. Mr. Gribble

Upper Division

191. Honors Course. II. 3 hr. PR: Second semester of junior year, recommendation by adviser. For departmental majors only. Supervised reading and investigation. Staff

192. Honors Course. I. 3 hr. PR: Zool. 181. Supervised reading and investigation. Staff

193. Honors Course. II. 3 hr. PR: Zool. 192. A thesis embodying the results of the work done in Zool. 191 and 192. Staff

210. Animal Behavior. I. 3 hr. Facts and principles of individual and group behavior, with consideration of the modern science of ethnology. Staff

222. Field Studies of Invertebrates. S. 3 hr. Taxonomy and ecology of the invertebrates. Mr. Birch

223. Field Studies of Vertebrates. S. 3 hr. Taxonomy and ecology of the vertebrates. Mr. Birch

224. Limnology. I. 5 hr. PR: Zool. 2 or equiv. Physical and biological characteristics of inland waters with an introduction to principles of biological productivity. Mr. Benson

231. Comparative Anatomy. I. 5 hr. PR: Zool. 2 or equiv. Organs and systems of various vertebrates, together with other facts of interest concerning these animals. Mr. Gribble, Miss Montiegel, and Miss Williams

232. Vertebrate Embryology. II. 5 hr. PR: Zool. 2 or equiv. Introductory study of developments of vertebrates, based on frogs, fowl, and mammals. Mr. Gribble, Miss Montiegel, and Miss Williams

233. Comparative Histology. II. 4 hr. PR: Zool. 231 and consent. Limited to seniors and graduate students. A comparative study of tissues of the vertebrates. Miss Williams

235. Comparative Developmental Anatomy. II. 3 hr. PR: Zool. 231. Anatomy and development of the organs and systems of various vertebrates. Mr. Gribble

236. Comparative Neuroanatomy. II. 3 hr. PR: Zool. 2, 231 or consent. Comparative study of development and anatomy of the nervous systems of vertebrates with emphasis on the mammals. Miss Montiegel

237. Osteology. I. 2 hr. PR: Zool 2. Development and anatomy of the skeleton. Miss Williams

250. Animal Systematics. I. 2 hr. PR: Zool. 2 or equiv. Principles and practices in animal taxonomy. Mr. Benson

251. Invertebrate Zoology. I. 4 hr. PR: Zool. 2 or equiv. Advanced study of animals without backbones. Mr. Birch

255. Introduction to Human Parasitology. II. 4 hr. PR: Zool. 2 or equiv. Biological aspects of parasites and other animals of medical importance. Staff

263. Ichthyology. II. 3 hr. PR: Zool. 2 or equiv. Ecology, life histories, taxonomy, and distribution of fishes. Mr. Benson

264. Fisheries Biology. II. 4 hr. PR: Zool. 2 or equiv. Fisheries management, emphasizing study of age and growth, population techniques, and concept of yield. Mr. Benson

365. Ornithology. II. 3 hr. PR: Zool. 1 or equiv., consent. Field and laboratory studies on identification, migration, protection, nesting, and food habits of birds. Mr. Birch

271. Vertebrate Physiology. I. 4 hr. PR: Zool. 2 or equiv. A consideration of the functions of vertebrate organs and organ systems. Staff

272. Physiology of the Endocrines. I. 4 hr. PR: General zool. or general biol., comparative anat., and organic chem. Comparative physiology and endocrine mechanisms. The relation of hormonal and parahormonal agents to chemical coordination, metabolism, growth, development, and sex. Staff

273, 274. Cellular Physiology. I, II. 4 hr. per sem. PR: Biol. 2 or Zool. 2; Chem. 238 and Physics 2. A consideration of the functions common to all forms of living matter. Mr. Norman

275. Human Physiology. I, II. 4 hr. An introductory course in the functions of man. Messrs. Norman, Coover, and Staff

276. Comparative Physiology. II. 4 hr. PR: Zool. 273 or equiv. A study of the diverse ways in which different kinds of animals meet their functional requirements. Staff

Graduate Division

Zoology 331-339, inclusive, are offered as available topics for special study in the areas listed. Students should not enroll for these courses without consent of instructor.

331. Mammalian Anatomy. 3 hr. PR: Zool. 231, 232, 233, 235, 236, and 237, and consent. The study of the anatomy of selected animals from the regional and sectional approach. Mr. Gribble

332. Anatomy of the Integument. 2 hr. PR: Zool. 231, 232, 233, 234, and 235, and consent. An advanced study of the gross, developmental, comparative and microscopic anatomy of the integument and its derivatives. Mr. Gribble

334. Anatomy of the Circulatory and Respiratory Systems. 3 hr. PR: Zool. 231, 232, 235, and consent. An advanced study of the gross, developmental and comparative anatomy of the circulatory and respiratory systems. Mr. Gribble

335. Anatomy of the Urogenital System. 3 hr. PR: Zool. 231, 232, and 235, and consent. An advanced study of the gross, developmental and comparative anatomy of the genital and urinary systems. Mr. Gribble

336. Advanced Comparative Neuroanatomy. 3 hr. PR: Zool. 231, 232, 233, and 236, and consent. An advanced study of the gross, microscopic, developmental and comparative anatomy of the nervous system. Mr. Gribble

337. Advanced Osteology. 3 hr. PR: Zool. 231 and 237, and consent. The study of the gross, microscopic, developmental, and comparative anatomy of the skeleton. Mr. Gribble

338. Analogies and Homologies. 3 hr. PR: Zool. 231, 232, 233, 235, 236, 237, 331, 334, 336, and 337, and consent. A detailed study of the analogies and homologies as found in the vertebrates. Mr. Gribble

339. Anomalies and Variations. 3 hr. PR: Zool. 231, 232, 233, 235, 236, 237, 331, 334, 335, 336, 337, and 338, and consent. A detailed study of the types, causes, results and frequency of vertebrate anatomical and developmental anomalies and variations. Mr. Gribble

351. Advanced Invertebrate Zoology. I, II. 1-4 hr. PR: Zool. 251 and consent. Mr. Birch

391, 392, 393, 394. Research. I, II. 1-6 hr. Staff

396, 397. Special Topics. I, II. 1-3 hr. per sem. Critical studies to be determined according to the student's requirements. Staff

CHEMISTRY

Professors J. L. Hall, Collett, Gibson, Hickman, and Lazzell; Associate Professors Graybeal, G. A. Hall, Humphrey, Muth, Paul, Popovich, and Wilhelm; Assistant Professors MacDowell, and Winston; Instructor Morrison; Instructors (part-time) Isner, McMullen, Pitzer, and Robertson.

Chem. 1 and 2 or Chem. 3 and 4 are prerequisite to all other courses in chemistry. Chemistry majors are required to take Chem. 1, 2, 5, and 6 or Chem. 3 and 4, followed by Chem. 233, 238, 258, 259, 260, and 261; Math. 107 and 108; Physics 111 and 112 or equivalent.

A deposit is required of all students who take laboratory courses in chemistry.

Bachelor of Arts in Chemistry

The Bachelor of Arts degree is recommended for those students who are interested in a scientific program which offers opportunity for a considerable number of electives in the nonscience field. This program is recommended for those students who plan to teach in secondary schools. Careful planning with their advisers is necessary for such students, in order that teacher certification requirements may be met. The requirements, listed below, total 128 credit hours of which 124 must be in subjects exclusive of credit earned in Military or Air Science, Physical Education, and English 0. (Math. 2, completed after Sept. 1, 1962, will not be included in the 124 hours).

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1 or 3	4 or 5	Chem. 2 or 4	4 or 5
English 1	3	English 2	3
Math. 3	3	Math. 4	3
Foreign language	3	Foreign language	3
Phys. Ed. 1 or elective	1	Phys. Ed. 2 or elective	1
Mil. or Air Sci. 1 or elective	2	Mil. or Air Sci. 2	2
	16 or 17		16 or 17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 5	4	Chem. 6	5
Math. 5	4	Math. 107	4
Foreign language	3	Foreign language	3
Group 2 electives	3	Group 2 electives	3
Mil. or Air Sci. 3 or elective	2	Mil. or Air Sci. 4 or elective	2
	16		17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233	5	Chem. 238	5
Math. 108	4	Physics 112	5
Group 1 elect.	3-4	Group 1 elect.	3-4
Physics 111	5	Speech 11	3
	17 or 18		16 or 17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 260	5	Chem. 261	5
Chem. elect.	2	Chem. elect.	2
Other electives	11	Other electives	11
	18		18

Bachelor of Science in Chemistry

The Bachelor of Science degree is designed for those students who desire to qualify for professional positions in industry and governmental services, as well as those who plan to do graduate work in chemistry. Requirements for the Bachelor of Science degree are listed below. Electives must be chosen so as to satisfy the distribution of electives required for the A.B. degree. A total of 136 credit hours are required of which a minimum of 124 hours must be established in subjects exclusive of credits earned in required Physical Education, required Military Science or Air Science, and English 0. (Math. 2, completed after Sept. 1, 1962, will not be included in the 124 hours.) Twenty-one hours of "other electives" are included in the third- and fourth-year schedule. Six hours of these electives must be chosen from upper-division courses (200 series) in engineering, mathematics, or sciences other than chemistry.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1 or 3	4 or 5	Chem. 2 or 4	4 or 5
English 1	3	English 2	3
Foreign language	3	Math. 4	3
Math. 3	3	Foreign language	3
Phys. Ed. 1	1	Phys. Ed. 2	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	16 or 17		16 or 17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 5	4	Chem. 6	5
Math. 5	4	Math. 107	4
Foreign lang.*	3	Foreign language	3
Other electives	4	Other electives	4
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	18		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233	5	Chem. 238	5
Math. 108	4	Physics 112	5
Physics 111	5	Chem. elective	2
Chem. elective	2	Other electives	4
Other electives	2		
	18		16

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 260	5	Chem. 261	5
Chem. elective	4	Chem. elective	4
Other electives	8	Other electives	8
	17		17

*Six hours of a second foreign language in addition to the language requirements for the A.B. degree are necessary for graduation.

Courses of Instruction*

Lower Division

1. General Chemistry. I, II. 4 hr. Beginning course in chemistry. Primarily for freshmen. Staff

2. General Chemistry. I, II. 4 hr. PR: Chem. 1. Completes one year of general chemistry. Primarily for freshmen. Staff

3. General Chemistry. I. 5 hr. PR: High school chemistry and concurrent enrollment in Math. 3, or more advanced mathematics. Primarily for students in pre-chemistry and chemical engineering. Staff

4. General Chemistry. II. 5 hr. PR: Chem. 3. Primarily for students in pre-chemistry and chemical engineering. Staff

5 or 105. Qualitative Analysis. I. 4 hr. PR: Chem. 2. Required of students whose major is chemistry, and pharmacy students. 2 lect. and two 3-hour labs. Mr. Gibson and Miss Paul

6 or 106. Quantitative Analysis. II. 4-5 hr. PR: Chem. 2. Chem. 5 should precede this course wherever possible. Required of students whose major is chemistry. 3 lect. and 3 lab. Mr. Gibson

15 or 115. Quantitative Analysis. I, II. 3 hr. PR: Chem. 2. For premedical, chemical engineering, and pharmacy students. Two 1-hr. lect., and two 3-hr. labs. Mr. Humphrey and Mr. Winston

31 or 131. Organic Chemistry. I. 4 hr. PR: Chem. 2. For students in agriculture and home economics. 3 lect., 1 lab. Mr. Winston

63 or 163. Physical Chemistry. I. 4 hr. PR: Chem. 2. Required of premedical students and recommended for geology majors and non-chemistry majors. 3 lect., 1 lab. Mr. G. A. Hall

Upper Division

141, 142. Assigned Topics. I, II. 1-5 hr. PR: Consent. Individual investigations under supervision of instructor. Staff

170. Glass Working and Related Laboratory Techniques. II. 2 hr. PR: Chemistry major or consent. 1 lect., 1 lab. Mr. Graybeal

201. Intermediate Inorganic Chemistry. I. 3 hr. PR: Chem. 6 or 106. Designed for chemistry, engineering and science majors. 2 lect., 1 lab. Mr. Wilhelm

202. Inorganic Synthesis. II. 2 hr. PR: Chem 106. Staff

210. Instrumental Analysis. II. 3 hr. PR: Chem 260. Staff

214. Qualitative Organic Analysis. I. 3 hr. PR: Chem. 238. For seniors or graduate students of chemistry and other sciences. 1 lect., 2 lab. Mr. Muth

215. Quantitative Organic Analysis. II. 3 hr. PR: Chem. 238. For seniors and graduate students of chemistry and other sciences. 1 lect., 2 lab. Mr. Muth

217. Polymer Chemistry. II. 2 hr. PR: Chem. 238, 261. Mr. Winston

233. Organic Chemistry. I, II. 4-5 hr. PR: Chem. 6 or 115, or 4. Required of students who major in chemistry, premedicine, and chemical or mining engineering. 3 lect., 1 or 2 labs. Mr. Lazzell and Mr. Muth

*Chem. 1 and 2 are prerequisite to Chem. 5 or 105, 6 or 106, 15 or 115, 31 or 131 and 63 or 163. Chem. 3 and 4 replace Chem. 1, 2, 5, and 6 or 15 in the program for majors in chemistry and chemical engineering.

238. Organic Chemistry. II. 4-5 hr. PR: Chem. 233. Continuation of Chem. 233. 3 lect., 1 or 2 labs. Mr. Lazzell

239. Organic Synthesis. II. 2 hr. PR: Chem. 238. Staff

243, 244. Selected Topics. I, II. 1-5 hr. PR: Consent. Individual investigations under supervision of instructor. Staff

247. Stereochemistry. I. 2 hr. PR: Chem. 238. Open to seniors. Mr. Winston

258. Physical Chemistry Laboratory. I. 1-2 hr. PR: Chem. 260 or concurrent enrollment in Chem. 260. Required of majors in chemistry. Mr. Collett

259. Physical Chemistry Laboratory. II. 1-2 hr. PR: Chem. 258, 260, and 261 or concurrent enrollment in Chem. 261. Required of all majors in chemistry. Mr. Collett

260. Physical Chemistry. I. 3 hr. PR: Chem. 233, Physics 112, Math. 108. Required of chemistry majors. Mr. Collett

261. Physical Chemistry. II. 3 hr. PR: Chem. 260. A continuation of Chem. 260. Mr. Collett

262. Colloid and Surface Chemistry. II. 2 hr. PR: Chem. 115 or equiv. Mr. G. A. Hall

264. Physical Chemistry. II. 4 hr. PR: 11 hr. of college chemistry. For non-chemistry graduate students, particularly teachers of science in public schools. 3 lect., 1 lab. Mr. G. A. Hall

273. Chemical Literature. II. 2 hr. PR: Chem. 6, 238. Study of procedures used for search of scientific literature. Mr. Hickman

274. History of Chemistry. II. 2 hr. PR: Chem. 6 or equiv., organic chemistry. A study of the development of scientific thought in the field of chemistry. Miss Paul

277. Chemistry of Natural Products. II. 2 hr. PR: Chem. 238 or equiv. Offered in alternate years. Mr. MacDowell

280. Electrochemistry. II. 3 hr. PR: Chem. 238, 261. 1 lect., 2 labs. Mr. Collett

282. Chemistry of Natural Products. II. 2 hr. PR: Chem. 238 or equiv. Offered in alternate years. Mr. MacDowell

285. Nuclear Chemistry. II. 3 hr. PR: Chem. 2, Math. 107. Fundamentals of radioactivity as applied to chemistry and discussion of tracer applications. Mr. Wilhelm

289. Chemical Thermodynamics. I. 2 hr. PR: Chem. 261, Math. 108. Mr. Gibson

Graduate Division

301. Advanced Inorganic Chemistry. I. 3 hr. PR: Chem. 261. Required of all graduate chemistry majors. Mr. Hickman

302. Advanced Inorganic Chemistry. II. 3 hr. PR: Chem. 301. Mr. Hickman

343. Advanced Organic Chemistry. I. 3 hr. PR: Chem. 238 or equiv. Required of all graduate chemistry majors. Mr. Muth

344. Advanced Organic Chemistry. II. 3 hr. PR: Chem. 343. Staff

350. Heterocyclic Chemistry. II. 2 hr. PR: Chem. 343. Mr. Muth

367. Advanced Physical Chemistry. II. 3 hr. PR: Chem. 261. Required of all graduate chemistry majors. 2 lect., 2 lab. Mr. J. L. Hall

368. Advanced Physical Chemistry. I. 4 hr. PR: Chem. 367. Mr. J. L. Hall

369. Chemical Kinetics. II. 2 hr. PR: Chem. 261. Mr. G. A. Hall

370. Quantum Chemistry. I. 3 hr. PR: Chem. 261, Math. 108, Physics 112. Discussions of the development and significance of quantum mechanics with application of chemical problems. Mr. Humphrey

371. Advanced Theoretical Chemistry. II. 3 hr. PR: Chem. 368 and 370 Staff

391, 392. Journal Meeting and Seminar. I, II. 1 hr. per sem. Required of students working for graduate degrees with a major in chemistry. Recommended as a minor for students from other departments. Staff

395, 396. Special Topics. I, II. 1-3 hr. per sem. Chemistry of carbohydrates, chemical microscopy, crystallography, coordination compounds, unfamiliar oxidation states, inorganic preparations, inorganic polymers, infrared, microwave, and radio-frequency spectroscopy are topics suggested for this course. Staff

397, 398, 399. Research. I, II. 1-10 hr. Six hours are required for the Master's Degree. Staff

ECONOMICS

Professors Campbell, Alvis, Coleman, L. Fishman, Roberts, and Thompson; Associate Professor Gavett; Assistant Professors Braff, Leyden, Mischaikow, Newhouse, and Stocks; Visiting Assistant Professor Mattis; Instructor Cecil.

Since 1952 the College of Commerce has offered all courses in Economics and has granted the B.S. degree in Economics, while the College of Arts and Sciences has continued to grant the A.B. degree in this field.

The course of study leading to the B.S. degree is aimed primarily at preparing the student for a career as an economist in business or government. Consequently, the student selecting this program is required to complete courses in accounting, business writing, and business finance, as well as courses in economics. About one-half of his upper-division electives must be taken in courses offered by the College of Commerce.

The program leading to the A.B. degree in Economics is designed for students who wish to combine fundamental training in economics with a liberal arts education. Of the total of 128 hours required for graduation, 30 or more credit hours are available for elective subjects. There are two principal requirements which apply to the A.B. program, but do not apply to the B.S. program. These are the requirements that the student must complete 12 hours in a foreign language and 9 upper-division hours in a minor field other than economics.

A candidate for the A.B. degree with a major in Economics must complete a minimum of 128 semester hours for graduation. English 0 and Mathematics 2, if taken, may not be counted in this total, and required courses in Physical Education and required courses in basic Military Science or Air Science may be counted only to the extent of 4 hours. He must also complete at least 24 semester hours in upper-division economics courses. A minimum of 58 semester hours must be completed in the upper-division level. Of these, not less than 9 upper-division hours must be earned in a minor field approved by the candidate's adviser.

Lower-Division Program. The curriculum of the lower division is designed to provide a background for the study of Economics. The following courses are required and students are expected to complete them within the first two years in residence at the University:

FIRST YEAR	Hr.	SECOND YEAR	Hr.
English 1 and 2—Composition	6	Economics 1 and 2—Principles	6
Foreign Language	6	Foreign Language	6
History 1 and 2—World Civilization or Humanities 1 and 2	6-8	History 52 and 53—American History or Pol. Sci. 2 and 120	6
Laboratory Science*	8	Mathematics 3—College Algebra	3
Mil. or Air Science 1 and 2	4	Mil. or Air Science 3 and 4	4
Phys. Educ.—General Program	2	Phys. Educ.—Women's Program	2
Electives—Women	3	Speech 11—Public Speaking	3
		Electives—Men	8
		Electives—Women	10
	32-34		36

*A laboratory science may be chosen from biology, botany, chemistry, geology, physics, physical science, psychology, or zoology.

Upper-Division Program. An Economics major must complete a minimum of 24 upper-division hours in Economics, including the following courses:

Econ. 111—Money and Banking
Econ. 115—Labor Problems
Econ. 125—Statistics
Econ. 221—Economic Theory
Econ. 222—History of Economic Thought

Thus, in addition to the above courses, the candidate must complete a minimum of 9 semester hours of upper-division elective courses in Economics.

Courses of Instruction

Lower Division

1. Principles of Economics. I, II. 3 hr. Organization and principles of economic activity. Freshmen are not admitted to Econ. 1 and 2. Staff

2. Principles of Economics. I, II. 3 hr. PR: Econ. 1. Continuation of Econ. 1. Econ. 2 is prerequisite to all upper-division courses in economics. Staff

*Upper Division**

111. Money and Banking. I, II. 3 hr. Our system of monetary and banking arrangements, viewed in relation to functioning of the economic system as a whole. Mr. Alvis

115. Labor Problems. I, II. An introduction to labor economics and labor relations in industry, including the interaction of economic forces, union policies, personnel practices, and labor law. Mr. Stocks

125. Statistics. I, II. 3 hr. PR: Math. 2 or 3. Basic statistical methods employed in the collection, presentation, analysis, and interpretation of business and economic data such as analysis of frequency distributions, time series, inference, index numbers, and correlation. Mr. Mischaikow

205. Current Economic Problems. S. 3 hr. PR: Econ. 1 and 2 or consent. For students in Education only. A course designed to acquaint public school teachers with reliable source materials in economics and to instruct them in studying current economic problems. Mr. Campbell

209. Problems in Economics. I, II. 1-3 hr. Staff

*Economics 2 is prerequisite to all upper-division courses in economics.

210. Comparative Economic Systems. I or II. 3 hr. Structure and process of existing economic systems throughout the world, including review of basic principles of free enterprise, socialistic, communistic, and fascistic societies. Comprehensive analysis based on current and recent experiments in these economies. Mr. Thompson

217. Trade Unionism. I or II. 3 hr. PR: Econ. 115 or consent. An analysis of the structure, government, attitudes, and policies of organized labor; the implication of union policy. Mr. Gavett

219. The Economics of Wages and the Labor Market. I or II. 3 hr. PR: Econ. 115 or consent. Determination of wage levels and structure; the functioning and organization of labor markets. Mr. Gavett

218. Collective Bargaining. I or II. 3 hr. PR: Econ. 115 or consent. Theory and practice in collective bargaining; including contract issues, types of relationships and the role of government policy. Mr. Gavett

220. Introduction to Quantitative Analysis. I or II. 3 hr. PR: Econ. 125. Study of the principal mathematical techniques employed in economic analysis; an introduction to econometrics. Mr. Braff

221. Economic Theory. I. 3 hr. Training and experience in use of analytical methods and techniques needed in dealing with fundamental economic problems. Mr. Braff

222. History of Economic Thought. II. 3 hr. Economic ideas in perspective of historic development. Mr. Thompson

225. Transportation. I. 3 hr. Development of an inland transportation system and relations and policies of transport agencies. Mr. Campbell

230. Public Utilities. II. 3 hr. Development of regulation; economics of valuation and rate making. Mr. Campbell

235. Economic Growth and Business Cycles. I or II. 3 hr. PR: Econ. 125, or consent. Industrial fluctuations; causes and possible remedies. Mr. Fishman

241. Public Finance. I. 3 hr. Governmental fiscal organization and policy; taxes and tax systems with particular emphasis upon the Federal Government and the State of West Virginia. Mr. Alvis

245. Government and Business. II. 3 hr. Government in its role of adviser and umpire; analysis of governmental policies and practices affecting business. Mr. Newhouse

250. International Economics. I or II. 3 hr. Development of trade among nations; theories of trade; policies, physical factors, trends, and barriers in international economics. Mr. Alvis and Mr. Mischaikow

251. Economic Development. II. 3 hr. A comprehensive study of the problems, changes, and principal policy issues faced by non-industrialized countries in the process of economic development. Mr. Mischaikow

256. Advanced Statistics. II. 3 hr. PR: Econ. 125 or equiv. An advanced approach to statistical analysis with emphasis on probability, inference, and multi-varied statistical techniques. Mr. Braff

301. Managerial Economics. II. 3 hr. An analysis of markets and the problems of management in appraising business conditions and in adjusting to changes in production demand, costs, level of output, and profits. Staff

302. Research and Reports. I. 3 hr. A study of sources of business information and research procedures, with application in the preparation of reports. Mr. Coleman

310. Contemporary Economic Theory. II. 3 hr. PR: Econ. 221. Recent developments in economic theory such as those relating to imperfect competition, monetary problems, and collectivist economy. Staff

315. Bibliography and Research. I. 2 hr. Sources of information, research procedures, analysis and interpretation of data, preparation of manuscripts. Mr. Coleman

319. Seminar in Economics. II. 3 hr. Mr. Fishman

320. Quantitative Analysis. II. 3 hr. PR: Econ. 220. Econometrics and an examination of mathematical models employed in economic analysis, such as linear programming, input-output analysis, game theory, and statistical decision making. Mr. Braff

331, 332. Thesis. I, II. 2 or 3 hr. Staff

ENGLISH LANGUAGE AND LITERATURE

Professors Brawner, Bishop, Crocker, Draper, Foster, and Gainer; Associate Professor Pettigrew; Assistant Professors Buswell, Hicks, Johnston, Page, and Pitts; Instructors Ashburn, Berkley, Board, Bonar, Bondurant, Coffron, Coley, Corson, Davis, Dawson, Dowdell, Franklin, Futrell, Gaskins, Holden, Howard, Hypes, Kirby, Law, Milum, Modlin, Price, Rousseau, Schollaert, Spindler, Stansy, and Tower.

A student who expects to major in English should complete lower-division survey courses in English and American literature (English 3, 4, 5, and 6). These courses, however, are not absolute prerequisites to entrance into the program of major studies in English. If a student who is accepted as a major has not had the lower-division survey courses, he will be expected to compensate for this deficiency by taking certain upper-division courses that will be suggested by the departmental adviser.

Advisers of upper-division students who are not English majors may schedule them for English courses in the "100" series without regard to prerequisites. In order to qualify for registration in a course in the "200" series, a student is expected to have had prior work in upper-division courses.

Teacher Certification for English Majors

A student may take the A.B. degree in the College of Arts and Sciences with a major in English and at the same time qualify for teacher certification. Such a student will satisfy the requirements for the first teaching field in English while completing courses for his major. His second teaching field will be correlated with his minor subject in Arts and Sciences. He will complete 20 hours of prescribed courses in Education. The second teaching field for English teachers may be Speech, Library Science, Art, French, Spanish, German, Latin, or Social Studies. Other combinations are possible.

During the first two years, the courses chosen are largely governed by the basic two-year program required of all candidates for teacher certification. See the University bulletin *Teacher Training Programs* or the *Announcements* of the College of Education. These requirements satisfy most of the group or "distribution" requirements of Arts and Sciences.

By carefully planning his program, a student may complete all requirements for the A.B. degree and for teacher certification within four years. A mimeographed summary of all requirements which must be met in the combined program is available at the office of the Department of English.

Choice of Two Majors in English

The prescribed upper-division program for majors in English requires the student to complete courses in both English literature and American literature and allows him to determine the relative emphasis he will give to each. Three upper-division courses (Group "A") are required of all majors. Credit for this group is 9 hours. Twelve

additional hours are chosen from groups "B" and "C" according to the student's desire to emphasize English literature or American literature. The plan is shown as follows:

GROUP A (9 hr. required of all English majors):

1. English 142. Shakespeare. 3 hr.
2. English 234. Chaucer. 3 hr.
3. English 230. History of the English Language. 3 hr.

Choice of twelve additional hours of upper-division work, as follows:
Emphasis on English Literature: 9 hr. from Group B, 3 hr. from Group C.
Emphasis on American Literature: 3 hr. from Group B, 9 hr. from Group C.

GROUP B:

1. English 138. English Literature, 1660-1774. 3 hr.
2. English 139. English Literature, 1744-1798. 3 hr.
3. English 140. Elizabethan Poetry and Prose. 3 hr.
4. English 141. Literature of the 17th Century. 3 hr.
5. English 249. The Romantic Movement. 3 hr.
6. English 257. Victorian Poetry. 3 hr.
7. English 258. Victorian Prose. 3 hr.

The departmental adviser may allow the substitution of certain cognate period courses in English literature for any of those listed in this group; namely, courses in the literature of the Early English period, the Middle Ages, the 16th, 17th, 18th, 19th, and 20th centuries.

GROUP C:

1. English 166. American Fiction. 3 hr.
2. English 222. American Biography. 3 hr.
3. English 239. Southern Writers. 3 hr.
4. English 250. American Romanticism. 3 hr.
5. English 270. American Poetry. 3 hr.

English majors are strongly advised to study a second foreign language. For the first choice of a foreign language, the Department recommends French or German.

History 133 and 134 were formerly required of all English majors. The requirement is now not absolute; but the English major will schedule these courses unless he is precluded from doing so by the demands of the other parts of his program of studies.

Honors Program

At the beginning of the second semester of his junior year, an English major who has achieved an overall grade-point average of 3.00 or better, and whose record in English studies is above 3.00, may apply for admission to the Honors Program of the Department. (See page 142).

Suggested Semester Programs

The following lower-division course program is suggested for pre-English majors. The "electives" refer to groups 1, 2, 4, and 5 of "Distribution Requirements" in Arts and Sciences, and the numbers refer to these groups. The footnotes indicate choices that should be made by the teacher-trainee in order to combine these requirements with those of the teacher-training curriculum.

FIRST YEAR*

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
English 3 or 5	3	English 4 or 6	3
Foreign language	3	Laboratory Sci.	4
Laboratory Sci.	4	Foreign language	3
History or Humanities	3-4	History or Humanities	3-4
Phys. Ed.	1	Mil. or Air Sci. 2	2
Mil. or Air Sci. 1	2	Phys. Ed.	1
	17-19		17-19

SECOND YEAR*

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 3 or 5	3	English 4 or 6	3
Foreign language	3	Foreign language	3
Electives (Groups 2, 4, 5)	9-11	Electives (Groups 2, 4, 5)	9-11
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	17-19		17-19

THIRD YEAR**

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 142	3	Upper-division English B or C	3
English (Groups B or C)	3	Minor Subject	3-6
Minor Subject	3	Electives	8-12
Electives	8-10		
	17-19		17-19

FOURTH YEAR**

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 234	3	English 230	3
English (Groups B or C)	3	English (Groups B or C)	3
Minor Subject	3	Minor Subject	3
Electives	9	Electives	9
	18		18

**Special Note for Students Preparing for Teacher Certification*:

For the science requirement, choose the general course in Biology or in Physical Science. To satisfy Arts and Sciences Group 4 choose Speech 3, 6, 11, or 29. For Group 2, take Social Sci. 1 and 2. Other courses to work into your program as early as possible are Music 10 and Art 30 or 130, although Art 130 must be postponed and taken for upper-division credit. If your second field is to be Social Studies, you may postpone satisfying Arts and Sciences Group 5, and take Geography as upper-division credit. In the last semester of your second year take Educ. 105. For guidance in all these matters, study the bulletin "Teacher Training Programs—Requirements for Certification."

***For those preparing for teacher certification, the hours allowed for "electives" will be devoted to satisfying the requirements for certification. The requirements that must be satisfied are as follows:

(a) Any courses in the two-year general program for teachers that may not have been taken during the student's lower-division years. Check especially for English 18; Hist. 1 and 2 or Humanities 1 and 2; Social Sci. 1, 2; Music 10; Art 30; Health Educ. 101.
(b) Certain specific requirements for the English first teaching field, if not already met: Speech 3, 6, 11, or 29; 5 to 6 hr. additional, chosen from Journ. 215 (2 hr.), Libr. Sci. 1 or 101 (3 hr.), Speech 162 (3 hr.).
(c) Requirements of a second teaching field, insofar as they do not coincide with the student's Arts and Sciences minor.
(d) Twenty hours of Education, including practice teaching.

Courses of Instruction

Lower Division

0. English Composition. I, II. 3 hr. Required of all students who fail to qualify for English 1 on the Freshman English placement test. Staff

1. Composition and Rhetoric. I, II. 3 hr. Required of all candidates for the bachelor's degree in all colleges. Advanced sections are provided for students who made exceptionally high grades on the Freshman English placement test. Staff

2. Composition and Rhetoric. I, II. 3 hr. Continuation of English 1. Required of all candidates for the bachelor's degree in all colleges. Advanced sections are provided for students who made exceptionally high grades on the Freshman English placement test. Staff

3. Survey: English Literature. I, II. 3 hr. English authors from Beowulf to Burns and readings from their works. Upperclassmen may substitute English 163 for this course. Staff

4. Survey: English Literature. I, II. 3 hr. English authors from Robert Burns to the present and readings from their works. Upperclassmen may substitute English 164 for this course. Staff

5. American Literature. I, II. 3 hr. American authors to 1870 with readings from their works. Staff

6. American Literature. I, II. 3 hr. American poetry and prose from 1870 to the present. Continuation of English 5. Staff

13. Expository Writing. I, II. 2 hr. PR: English 1 and 2. Extensive practice in the various types of expository writing, together with the study of techniques. Staff

15. Description and Narration. I, II. 3 hr. PR: English 1 and 2. Exercises in descriptive and narrative writing. Emphasis on practical aspects as well as upon the imaginative and the aesthetic. Staff

18. Advanced English Composition (Written and Spoken). I, II. 3 hr. PR: English 1 and 2. Practice in the organization of thought and in the correct and effective use of the language in writing and speaking, with emphasis on the various types and techniques of exposition. Staff

25. Introduction to Poetry. I, II. 3 hr. A nontechnical approach to poems selected for their intrinsic interest and ease of comprehension. Designed to instruct and give pleasure. Staff

26. Introduction to Fiction. I, II. 3 hr. A companion course to English 25 and English 27 in the reading of works of fiction selected for their interest and significance to the general reader. Emphasis on appreciation and enjoyment. Mr. Futrell

27. Introduction to Drama. I, II. 3 hr. How to read, enjoy, and judge significant plays. Designed for the general student, not the specialist, with a view to developing a lasting interest in dramatic literature. Staff

Upper Division

100. Honors Course. I, II. 3 hr. Independent reading and study. For students admitted to the Honors Program in the second semester of their junior year. Staff

115. Creative Writing: Narration (Short Story). II. 3 hr. Purpose and pattern of the modern short story; study of examples in the current periodicals; special assignments and conferences with individual students on a minimum number of short stories. Mr. Johnston

123. Business English. I, II. 3 hr. PR: English 18. Technical writing; assembling and analysis of economic and commercial data; writing of reports; business correspondence. Primarily for students enrolled in the College of Commerce. Mrs. Law and Staff

125. Advanced Composition. I. 3 hr. The forms and techniques of expository writing, designed primarily for students in nontechnical fields. Staff

126. Advanced Composition. I, II. 3 hr. Technical forms of writing; designed particularly for students in science and engineering. Mrs. Buswell and Staff

127. Introduction to Literature (Part I). I, II. 3 hr. PR: English 1, 2. A course in the reading of stories, novels, plays, and poems for understanding and enjoyment. Arranged according to types and themes rather than according to

literary history, and designed for students from all fields. Satisfies any general requirement in literature. Mr. Futrell, Mr. Davis, and Mr. Stasny

128. Introduction to Literature (Part II). II. 3 hr. PR: English 1, 2. A continuation of English 127, with emphasis upon fiction, drama, and poetry to be read for understanding and pleasure. May be taken independently of English 127. Mr. Futrell, Mr. Davis, and Mr. Stasny

129. Words and Usage. II. 3 hr. A practical course in vocabulary building and in English grammar and usage. Attention is given to the derivation, history, and meaning of words, and to the principles of syntax and grammar. Mr. Dowdell

138. English Literature, 1660-1744. I. 3 hr. Study of the literature from the Restoration to the death of Pope, exclusive of the drama. Mr. Crocker

139. English Literature, 1744-1798. II. 3 hr. A study of literature from the death of Pope to the publication of Wordsworth's *Lyrical Ballads*, exclusive of the drama. Mr. Crocker

140. Elizabethan Poetry and Prose. I. 3 hr. A study of the Renaissance in England as manifested in the great variety of nondramatic literary works of the sixteenth century, with emphasis on the major writers of the reign of Elizabeth. Mr. Foster and Staff

141. Literature of the 17th Century. II. 3 hr. A consideration of the major poets and prose writers of the 17th century, with the exception of dramatic writings. Mr. Foster and Staff

142. Shakespeare. I, II. 3 hr. A study of twelve of Shakespeare's most important plays. Mr. Brawner, Mr. Draper, Mrs. Pettigrew, and Mr. Pitts

160. Contemporary Literature. I. 2 hr. A study of modern British and American poets and prose writers—including novelists, short-story writers, dramatists, and essayists. Chronology is roughly from 1900 to 1925. Mr. Foster

161. Contemporary Literature. II. 2 hr. A continuation of English 161 from approximately 1925 to the present time. Mr. Foster

163. English Literature. I, II. 3 hr. Survey: English Literature from the beginning to 1800. May be substituted for English 3 but may not be elected by students who already have credit for English 3. Staff

164. English Literature. I, II. 3 hr. Continuation of English 163 from 1800 to the present. May be substituted for English 4 but may not be elected by students who already have credit for English 4. Staff

166. American Fiction. I. 3 hr. The reading of ten or more of the most important American novels from Hawthorne to the present day, each considered as a work of art reflecting a significant view of life. Lectures on the works of principal authors, with class discussion of particular books. Mr. Hicks

173. Poetry. I, II. 2 hr. The appreciation and enjoyment of poems through critical and analytical reading. Studies in the various types of poetry, and of the language, imagery, and techniques of poetic expression. Mr. Brawner and Mrs. Buswell

175. The Short Story. I. 2 hr. A study of the historical development of the short story and of the schools into which the work of short-story writers is divided. Mr. Bishop

180. Bible Literature: Old Testament. I. 3 hr. The various types of literature exemplified in the Old Testament, read for their intrinsic merit and for their historical and cultural significance. Continued in English 181. Mr. Hicks

181. Bible Literature: New Testament and Apocrypha. II. 3 hr. The contents of the New Testament, its literary quality, with consideration of its historical

relations and of the relationships of the several writers represented. Because of the difficulty of treating the wealth of materials of the Old Testament during the one semester of English 180, the first part of this course will be devoted to continuation of the study of certain books of the Old Testament. Mr. Hicks

198. Honors Course. I, II. 3 hr. For the first semester of the senior year of students admitted to the Honors Program. Staff

199. Honors Course. I, II. 3 hr. For students in the Honors Program; final semester of senior year. Staff

Upper Division and Graduate

222. Modern American Biography. I. 3 hr. A selection of the most significant and interesting biographies and autobiographies of Americans of distinction in literature, the arts, and public life. Miss Page

223. Modern British Biography. II. 3 hr. Representative works by such eminent masters of biography by Lytton Strachey, Sir Osbert Sitwell, Lord David Cecil, Sean O'Casey, Hugh Kingsmill, and others. Miss Page

*224. Literary Criticism. II. 3 hr. Literary criticism from Aristotle to modern times. Staff

225. Recent Literary Criticism. II. 3 hr. A brief survey of the theories and essays of four major schools of modern criticism and an application of these theories to a novel, a play, and to selected poems and short stories. Mr. Foster

228. Advanced Grammar. I, II. 3 hr. A course in descriptive grammar, the parts of speech, construction, and methods of diagramming. Mr. Bishop

230. History of the English Language. I. 3 hr. A study of the nature of the language; questions of origins, language families, development, and relationships of English as one of the Indo-European languages. Mr. Pitts

*231. Old English. I. 3 hr. A study of Anglo-Saxon grammar, with selected reading from the literature of the period. Staff

*232. Beowulf. II. 3 hr. PR: English 231. Continuation of the study of Old English; critical reading of *Beowulf*. Staff

234. Chaucer. I. 3 hr. A study of Chaucer's *Canterbury Tales* and *Troilus and Criseyde*. In addition to an understanding and appreciation of Chaucer's literary work, the student is expected to acquire an adequate knowledge of Chaucer's language. Mr. Brawner

235. Shakespeare. I. 3 hr. A course for undergraduates and graduates in the detailed study of three of Shakespeare's major plays. Mr. Draper

239. Southern Writers. II. 3 hr. Examination of twentieth-century Southern essayists, poets, short-story writers, and novelists in relation to the ideological background. Mr. Foster

242. Literature for Teachers. S. 3 hr. Study and appreciation of selected works of American authors, with special reference to the high-school curriculum. Given usually in the summer session. Mr. Hicks

243. Literature for Teachers. S. 3 hr. Study and appreciation of selected works of English authors. Recommended for teachers of high-school English. Given usually in the summer session. Mr. Hicks

*244. Literature of the Sixteenth Century. I. 3 hr. Renaissance in England as reflected in literature, with some consideration of the fine arts and other aspects of culture. Mr. Draper, Mr. Brawner, and Mr. Pitts

*Given only in alternate years.

*245. Literature of the Seventeenth Century. II. 3 hr. The struggle between Cavalier and Puritan as reflected in the literature of the age. Mr. Draper and Mr. Foster

*247. Literature of the Eighteenth Century. I. 3 hr. The culture-history of England, 1700-1750, as expressed in social, economic, political, and religious movements, and as reflected in literature. Mr. Draper

*248. Literature of the Eighteenth Century. II. 3 hr. A continuation of English 247, covering the period from 1750-1800. Mr. Draper

249. The Romantic Movement. I. 3 hr. The works of Wordsworth, Coleridge, and Keats, together with an introduction to works of scholarship in the field of English Romanticism. Mr. Brawner

250. American Romanticism. II. 3 hr. The writings of Ralph Waldo Emerson, Henry David Thoreau, and Nathaniel Hawthorne. A study of the relations of these men to the history of their own time, and of their contributions to American thought and art. Mr. Brawner and Mr. Davis

*252. Modern English Literature, 1881-1918. I. 3 hr. A consideration of the revolt against mechanism, the new romanticism, doctrines of action, and contemporary tendencies. Mr. Crocker

*253. Pre-Shakespearean Drama. I. 3 hr. A study of the medieval drama from its beginning to the middle of the 16th century. Mr. Crocker

*254. Elizabethan Drama. II. 3 hr. A study of the dramatists of the Elizabethan period, exclusive of Shakespeare. Mr. Crocker

*255. Restoration and Eighteenth Century Drama. I. 3 hr. A study of persistent forms and new developments in the drama of the period. Mr. Crocker

256. Modern Drama. II. 3 hr. A study of world drama from Ibsen to the present day, with particular reference to -isms and ideas. Mr. Crocker

257. Victorian Poetry. I. 3 hr. A study of the major Victorian poets—Tennyson, Browning, Arnold, Rossetti, Morris, Swinburne, Fitzgerald, and a few of the later Victorian poets. Mr. Gainer and Mr. Pitts

258. Victorian Prose. II. 3 hr. A study of the nonfictional writings of the great Victorian prose critics: Carlyle, Ruskin, Arnold, Newman, Macaulay, Huxley, Morris. Mr. Gainer and Mr. Stasny

259. Dramatic Art of Shakespeare. II. 3 hr. A study of several of Shakespeare's histories, comedies, and tragedies, showing the chronological development of his art and matters of stage presentation in Shakespeare's age. Mr. Bishop

260. Studies in Shakespearean Comedy. I, II. 3 hr. PR: English 142, or consent. Textual and dramatic study of representative comedies. Mrs. Pettigrew

261. Technique of the Drama. I. 2 hr. A study of dramatic structure, with emphasis upon appreciation. Mr. Crocker

262. Study of Selected Authors. (American). I, II. 3 hr. A study of the works of a principal American author, or of more than one, as announced when the course is scheduled. Staff

263. Study of Selected Authors. (English). I, II. 3 hr. Study of the works of one or more of the principal English authors, as announced in the schedule when the course is listed. Staff

*264. Spenser. I. 3 hr. A study of Spenser's minor poems and *The Faerie Queene;* forms and sources, purpose of the great epic, social, political, and religious allegory. Staff

*Given only in alternate years.

265. Byron and Shelley. II. 3 hr. Reading and study of the works of two poets of the later Romantic Movement, together with works of criticism and scholarship related to the period. Mr. Gainer

267. Milton. I, II. 3 hr. A study of Milton's poems and of a few selected prose works. Mr. Gainer

270. American Poetry. I. 3 hr. A study of the major American poets of the nineteenth and twentieth centuries—Bryant, Poe, Emerson, Longfellow, Whitman, Dickinson, Frost, Eliot. Mr. Foster

272. Folk Literature. II. 3 hr. A study of the folk ballad, its origin, history, and literary significance, based on Child's collection and on American ballad collections. Mr. Gainer

275. The English Novel to the Time of Scott. I. 3 hr. A study of the English novel from the 16th century to the time of Scott, showing the development of the novelistic art from early narrative beginnings. Mr. Bishop

276. The English Novel, 1832-1900. II. 3 hr. A continuation of English 275. The development of the English novel from the early 19th century to the beginning of the 20th century. Mr. Bishop

278. Tragedy. II. 3 hr. Masterpieces of tragedy from Greek times to modern, with consideration of the changing concepts of tragedy and of the ethical and ideological values reflected in the works of major tragic authors. Mr. Brawner

280. The Modern Novel. I, II. 3 hr. The twentieth century novel, with emphasis upon the works of selected British novelists, together with a study of changing techniques during recent times. Mr. Johnston and Staff

291. Introduction to Literary Research. I, II. 2 or 3 hr. Lectures and exercises in research problems to prepare the student for such work in graduate and professional schools. Mr. Draper

Graduate Division

300. Thesis. I, II. 3 hr. Staff

301. Thesis. I, II. 3 hr. Staff

392. Seminar. I, II. 2 or 3 hr. PR: Specific authors to be approved by the instructor. A graduate study of particular periods or authors. Staff

FOREIGN LANGUAGES

Professors Lemke, Manning, McBride, Singer, and Stilwell; Associate Professors Frere and Herrera; Assistant Professor Wade; Instructors Beauchemin, Cantillano, Downes, Ferrante, Franck, Huffman, Pushkarsh, and Taylor; Lecturer Wilner.

This department offers work in foreign language, literature, and culture. Areas included are French, Spanish, Italian, German, Russian, Latin, Greek, Hebrew, Linguistics, Language Teaching Methods, and Bibliography. A student may be a candidate for an A.B. degree with a major or minor in French, Spanish, German, or Latin, or with a minor in Russian or Greek. Students whose grades have constantly fallen below "B" in language work in the lower division should not select a foreign language as a major or minor. At least 36 hours of work in a given language constitutes a major and 24 hours of work a minor. In most cases the department recommends that students who major in a foreign language should minor in a second. This is not a requirement, however, and other fields may be offered with the approval of the department chairman. Students who wish to earn professional certificates as elementary or secondary foreign language teachers are advised to consult the College of Education *Announcements*. Students who have offered two or more years of

high school foreign language as college entrance credit are expected not to register for either semester of the elementary work in that language.

Major in French

Requirements: French 1 and 2 or equiv., 3 and 4, 103 and 104, 109, 115, 116, 118, 217, and 231.

Suggested Program:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Laboratory Sci.	4	Laboratory Sci.	4
French 3*	3	French 4*	3
Humanities 1	4	Humanities 2	4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Electives	0-3	Electives	0-3
	15-18		15-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
French 103	3	French 104	3
Span. 1 or Ital. 1	3	Span. 2 or Ital. 2	3
Pol. Sci. 1 *or* Soc. Sci. 1	3-4	Pol. Sci. 2 *or* Soc. Sci. 2	3-4
Electives Group 5	3	Electives Group 4	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives	0-3	Electives	0-3
	17-18		17-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
French 109	3	French 231	3
French 115	3	French 116	3
Minor subject and electives	12	Minor subject and electives	12
	17-18		17-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
French 118	3	French 217	3
Minor subject and electives	15	Minor subject and electives	15
	17-18		17-18

*If a student has not had French in high school he will take French 1 and 2 in first year and will take French 3 and 4 concurrently with French 103 and 104 in second year.

Major in Spanish

Requirements: Spanish 1 and 2 or equiv., 3 and 4, 103 and 104, 109, 110, 211, 212, 221, and 222.

Suggested Program:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Laboratory Sci.	4	Laboratory Sci.	4
Spanish 3*	3	Spanish 4*	3
Humanities 1	4	Humanities 2	4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Electives	0-3	Electives	0-3
	15-18		15-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Spanish 103	3	Spanish 104	3
Fr. 1 or Ital. 1	3	Fr. 2 or Ital. 2	3
Pol. Sci. 1 *or* Soc. Sci. 1	3-4	Pol. Sci. 2 *or* Soc. Sci. 2	3-4
Electives Group 5	3	Electives Group 4	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives	0-3	Electives	0-3
	17-18		17-18

*If a student has not had Spanish in high school he will take Spanish 1 and 2 in first year and will take Spanish 3 and 4 concurrently with Spanish 103 and 104 in second year.

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Spanish 109	3	Spanish 110	3	Spanish 221	3	Spanish 222	3
Spanish 211	3	Spanish 212	3	Minor subject and electives	15	Minor subject and electives	15
Minor subject and electives	12	Minor subject and electives	12				
	17-18		17-18		17-18		17-18

Major in German

Requirements: German 1 and 2 or equiv., 3 and 4, 103, 104, 109, 110, and at least 12 hr. of upper-division courses in German or Linguistics. (See Linguistics 211, 212, 251, 252, 271, 272, 281, and 282.)

Suggested Program:

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
German 1	3	German 2	3	German 3	3	German 4	3
English 1	3	English 2	3	German 103	3	German 104	3
Humanities 1	4	Humanities 2	4	2nd For. Lang.	3	2nd For. Lang.	3
Laboratory Sci.	4	Laboratory Sci.	4	Pol Sci. 1 *or* Soc. Sci. 1	3-4	Pol. Sci. 2 *or* Soc. Sci. 2	3-4
Phys. Ed.	1	Phys. Ed.	1	Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2	Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
				Electives	0-3	Electives	0-3
	15-17		15-17		15-18		15-18

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
German 109	3	German 110	3	German	6	German	3
German elective	3	German elective	3	Electives	9-12	Electives	12-15
2nd For. Lang.	6	2nd For. Lang.	6				
Electives	3-6	Electives	3-6				
	15-18		15-18		15-18		15-18

Major in Latin

Requirements: Latin 1 and 2 or equiv., 3 and 4, 101, 102, 109, 110, 121, 122, and at least 6 hours of upper-division courses in Latin.

Suggested Program:

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Latin 3	3	Latin 4	3	Latin 101	3	Latin 102	3
English 1	3	English 2	3	Latin 109	3	Latin 110	3
Humanities 1	4	Humanities 2	4	Soc. Sci. 1	4	Soc. Sci. 2	4
Laboratory Sci.	4	Laboratory Sci.	4	Minor subject	3-6	Minor subject	3-6
Phys. Ed.	1	Phys. Ed.	1	Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2	Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	15-17		15-17		15-18		15-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Latin 121	3	Latin 122	3
Latin elective	3	Latin elective	3
Minor subject	6	Minor subject	6
Electives	3-6	Electives	3-6
	15-18		15-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Latin	6	Latin	3
Electives	9-12	Electives	12-15
	15-18		15-18

Courses of Instruction

FRENCH

Lower Division

1. Elementary French. I, II. 3 hr. Staff
2. Elementary French. I, II. 3 hr. Continuation of French 1. Staff
3. Intermediate French. I, II. 3 hr. Reading of modern French prose. Staff
4. Intermediate French. II. 3 hr. Continuation of French 3. Staff

Upper Division

103. Elementary Conversation. I. 3 hr. PR: French 1 and 2, or equiv. Staff
104. Elementary Conversation. II. 3 hr. Continuation of French 103. Staff
109. Grammar and Conversation. I. 3 hr. PR: 12 hr. of French, or equiv. Miss Wade
110. Advanced Conversation. II. 3 hr. PR: French 109, or equiv. Staff
115. The Classical School. I. 3 hr. PR: 12 hr. of French, or equiv. Mr. Manning
116. Literature of the Eighteenth Century. II. 3 hr. PR: 12 hr. of French, or equiv. Mr. Singer
118. Literature of the Nineteenth Century. I. 3 hr. PR: 12 hr. of French, or equiv. Mr. McBride
151. French for Public Schools. I. 3 hr. PR: 12 hr. of upper-division French, including French 103, 104, and 109. An intensive study of conversational French with emphasis on teaching methods in the elementary school. Staff
152. French for Public Schools. II. 3 hr. Continuation of French 151. Staff

Upper Division and Graduate

217. French Civilization. II. 3 hr. PR: 12 hr. of French. Miss Wade
221. The Romantic Movement. I. 3 hr. PR: A.B. in French, or consent. Mr. Singer
222. French Realism. II. 3 hr. PR: A.B. in French, or consent. Mr. Singer
226. Literary Criticism. II. 3 hr. PR: A.B. in French, or consent. Mr. Singer
227. Graduate Reading in French. No credit. A special course to prepare Ph.D. candidates for the reading examination in French. Staff
229. Literature of the 16th Century. I. 3 hr. PR: A.B. in French, or consent. Mr. McBride
231. Phonetics and Pronunciation. II. 3 hr. PR: 18 hr. of French, or equiv. Mr. Manning
237. Moliere. II. 3 hr. PR: French 115. Mr. Beauchemin

241. French Structural Linguistics. 4 hr. PR: 12 hr. of French. A special course for the NDEA Language Institute. Staff

242. Methods in French Secondary Teaching. 4 hr. PR: 12 hr. of French. A special course for the NDEA Language Institute. Staff

244. Explication De Textes. II. 3 hr. PR: 18 hr. of French, or equiv. Mr. Manning

271. The Modern Novel to 1930. I. 3 hr. PR: A.B. in French, or consent. Mr. Frere

272. The Novel After 1930. II. 3 hr. PR: A.B. in French, or consent. Mr. Frere

292. Pro-Seminar in French Literature. 1-6 hr. Special topics. Staff

Graduate Division

301. Master's Thesis. 3-6 hr. Staff

392. Seminar in French Literature. 1-6 hr. Special topics. Staff

SPANISH

Lower Division

1. Elementary Spanish. I, II. 3 hr. Staff

2. Elementary Spanish. I, II. 3 hr. Continuation of Spanish 1. Staff

3. Intermediate Spanish. I. 3 hr. Reading of modern Spanish prose. Staff

4. Intermediate Spanish. II. 3 hr. Continuation of Spanish 3. Staff

Upper Division

103. Elementary Conversation. I. 3 hr. PR: Spanish 1 and 2, or equiv. Staff

104. Elementary Conversation. II. 3 hr. Continuation of Spanish 103. Staff

109. Grammar and Conversation. I. 3 hr. PR: 12 hr. of Spanish, or equiv. Mr. Herrera

110. Advanced Conversation. II. 3 hr. PR: Spanish 109, or equiv. Mr. Herrera

151. Spanish for Public Schools. I. 3 hr. PR: 12 hr. of upper-division Spanish, including Spanish 103, 104, and 109. An intensive study of conversational Spanish with emphasis on teaching methods in the elementary school. Mr. Herrera

152. Spanish for Public Schools. II. 3 hr. Continuation of Spanish 151. Mr. Herrera

Upper Division and Graduate

211. Nineteenth Century Literature to 1870. I. 3 hr. PR: Spanish 3 and 4, or equiv. Mr. Singer

212. Spanish Literature Since 1870. II. 3 hr. PR: Spanish 3 and 4, or equiv. Mr. Singer

215. Lyric Poetry. I. 3 hr. PR: 12 hr. of Spanish, or equiv. Mr. Herrera

216. Spanish Civilization and Culture. I. 3 hr. PR: 12 hr. of Spanish, or equiv. Mr. Herrera

217. Spanish-American Literature and Culture. I. 3 hr. PR: Spanish 3 and 4, or equiv. Staff

218. Spanish-American Literature and Culture. II. 3 hr. PR: Spanish 3 and 4, or equiv. Continuation of Spanish 217. Staff

221. Literature of the Golden Age to 1635. I. 3 hr. PR: 18 hr. of Spanish, or equiv. Mr. Herrera

222. The Golden Age After Lope De Vega. II. 3 hr. PR: 18 hr. of Spanish, or equiv. Mr. Herrera

223. Estudios De Estilo. I. 3 hr. PR: 18 hr. of Spanish, or equiv. Staff

224. Explicacion De Textos. II. 3 hr. PR: 18 hr. of Spanish, or equiv. Staff

225. The Picaresque Novel. I. 3 hr. PR: 12 hr. of Spanish, or equiv. Mr. Herrera

227. Graduate Reading in Spanish. No credit. A special course to prepare Ph.D. candidates for the reading examination in Spanish. Staff

241. Spanish Structural Linguistics. 4 hr. PR: 12 hr. of Spanish. A special course for the NDEA Language Institute. Staff

242. Methods in Spanish Secondary Teaching. 4 hr. PR: 12 hr. of Spanish. A special course for the NDEA Language Institute. Staff

291. Cervantes. II. 3 hr. PR: A.B. in Spanish, or consent. Mr. Singer

292. Pro-Seminar in Spanish Literature. 1-6 hr. Special topics. Staff

295. Sixteenth Century Literature. I. 3 hr. Staff

297. Pro-Seminar in Spanish-American Studies. 1-6 hr. Special topics. Staff

Graduate Division

301. Master's Thesis. 3-6 hr. Staff

392. Seminar in Spanish Literature. 1-6 hr. Special topics. Staff

397. Seminar in Spanish-American Studies. 1-6 hr. Special topics. Staff

ITALIAN

Lower Division

1. Elementary Italian. I. 3 hr. Staff

2. Elementary Italian. II. 3 hr. Continuation of Italian 1. Staff

3. Intermediate Italian. I. 3 hr. Reading of modern Italian prose. Staff

4. Intermediate Italian. II. 3 hr. Continuation of Italian 3. Staff

GERMAN

Lower Division

1. Elementary German. I, II. 3 hr. Staff

2. Elementary German. I, II. 3 hr. Staff

3. Intermediate German. I. 3 hr. Reading of modern German prose. Staff

4. Intermediate German. II. 3 hr. Continuation of German 3. Staff

Upper Division

103. Spoken German. I. 3 hr. PR: German 1 and 2, or equiv. Staff

104. Spoken German. II. 3 hr. Continuation of German 103. Staff

105. The German Novelle. I. 3 hr. PR: German 3 and 4, or consent. Representative stories of Keller, Meyer, Storm, and Stifter. Mr. Lemke

106. The German Novelle. II. 3 hr. PR: German 3 and 4, or consent. From Naturalism to present day. Continuation of German 105. Mr. Lemke

107. Nineteenth Century Drama. I. 3 hr. PR: German 3 and 4, or consent. Critical study of selected dramas by Kleist, Grillparzer, Hebbel, and Ludwig. Mr. Lemke

108. Nineteenth Century Drama. II. 3 hr. PR: German 3 and 4, or consent. Continuation of German 107. Mr. Lemke

109. Advanced Grammar and Composition. I. 3 hr. PR: German 103 and 104, or consent. Intensive review of German grammar with extensive practice in German composition and translation into German. Mr. Stilwell

110. Advanced Composition and Conversation. II. 3 hr. PR: German 109, or consent. Additional practice in composition, with all explanations and discussions conducted in German. Mr. Stilwell

121. Scientific German. I. 3 hr. PR: German 1 and 2. Primarily for students in science courses. Staff

122. Scientific German. II. 3 hr. Continuation of German 121. Staff

136. Introduction to Goethe. II. 3 hr. PR: German 3 and 4, or consent. Mr. Lemke

161. Lyric Poetry. I. 3 hr. PR: German 3 and 4, or consent. Mr. Lemke

163. Modern German Prose in English Translation. I. 3 hr. Reading and discussion of outstanding German short stories and a few novels. (No credit allowed for departmental major nor for regular language requirements). Staff

Upper Division and Graduate

201. Independent Reading. I. 3 hr. Supervised reading for students who wish to do intensive work in any field of interest. Mr. Lemke

202. Independent Reading. II. 3 hr. Continuation of German 201. Mr. Lemke

227. Graduate Reading in German. No credit. A special course to prepare Ph.D. candidates for the reading examination in German. Staff

242. Faust. II. 3 hr. Critical study of Goethe's *Faust*. Mr. Lemke

243. Medieval German Literature. I. 3 hr. PR: German 4, or consent. Mr. Stilwell

244. German Literature of the Restoration and Renaissance. II. 3 hr. PR: German 4 or consent. Mr. Stilwell

245. Classicism and Romanticism. I. 3 hr. PR: German 4, or consent. A critical study of German literature from 1750 to 1830. Mr. Lemke

246. The Liberal Age. II. 3 hr. PR: German 4, or consent. A critical study of German literature from 1830 to 1880, with an emphasis upon Poetic Realism. Mr. Lemke

247. The Age of Crisis. I. 3 hr. PR: German 4, or consent. A critical study of German literature from 1880 to the present. Mr. Lemke

265. German Civilization. I. 3 hr. PR: 12 hr. of German, or consent. A general comprehensive survey of the most important aspects of German culture, including a brief historical background, the development of the German language, geography, science, music, art, architecture, literature, and philosophy. Mr. Lemke and Mr. Stilwell

275. The Modern Novel. I. 3 hr. PR: 18 hr. of German. Supervised reading of nineteenth century novels. Mr. Lemke

276. The Modern Novel. II. 3 hr. Continuation of German 275, with emphasis on recent fiction. Mr. Lemke

292. Pro-Seminar in German Literature. 1-6 hr. Special topics. Staff

Graduate Division

301. Master's Thesis. 3-6 hr. Staff

392. Seminar in German Literature. 1-6 hr. Special topics. Staff

RUSSIAN

Lower Division

1. Elementary Russian. I. 3 hr. Staff

2. Elementary Russian. II. 3 hr. Staff

3. Intermediate Russian. I. 3 hr. Reading of modern Russian prose. Staff

4. Intermediate Russian. II. 3 hr. Continuation of Russian 3. Staff

Upper Division

103. Elementary Conversation. II. 3 hr. PR: Russian 1 and 2, or equiv. Mr. Pushkarsh

104. Elementary Conversation. I. 3 hr. Continuation of Russian 103. Mr. Pushkarsh

144. Survey of Russian Literature. I. 3 hr. PR: Russian 3 and 4, or consent. Staff

145. Survey of Russian Literature. II. 3 hr. Continuation of Russian 144. Staff

Upper Division and Graduate

211. The Russian Novel. I. 3 hr. PR: Russian 3 and 4, or consent. Staff

212. The Russian Novel. II. 3 hr. Continuation of Russian 211. Staff

LATIN

Lower Division

1. Elementary Latin. I. 3 hr. Staff

2. Elementary Latin. II. 3 hr. Continuation of Latin 1. Staff

3. Intermediate Latin. I. 3 hr. PR: Latin 1 and 2, or two years of high-school Latin. Selections from Caesar, Aulus Gellius, and Nepos, and from other authors of comparable difficulty, designed to prepare students to read orations of Cicero. Staff

4. Cicero's Orations. II. 3 hr. PR: Latin 3, or two years of high-school Latin. Staff

Upper Division

101. Classical Myths in the Modern World. I. 3 hr. This course, given entirely in English and assuming no knowledge of Greek or Latin, introduces the student to classical myths of gods and legends of heroes and their influence upon the modern world of thought and science. Staff

102. Classical Culture and the Modern World. II. 3 hr. This course, given entirely in English, introduces the student to classical life and thought through a study of Greek and Roman daily life and customs, art, law, literature, science, and the influence of these upon present-day life and thought. Staff

109. Selections from Roman Prose. I. 3 hr. PR: Latin 3 and 4, or equiv. Staff

110. Selections From Roman Poetry. II. 3 hr. PR: Latin 4 and 109, or equiv Staff

111. Latin for Law Students. II. 3 hr. PR: Latin 3, or two years of high-school Latin. Selections from legal Latin and the Institutes of Justinian. Staff

112. Roman Letterwriting. I. 3 hr. PR: Latin 4 and 109, or four years of high-school Latin. Staff

121. Survey of Latin Literature. I. 3 hr. PR: Latin 109 and 110, or consent. Staff

122. Survey of Latin Literature. II. 3 hr. Continuation of Latin 121. Staff

Upper Division and Graduate

201. The Story and Novel. I. 3 hr. PR: Latin 109, 110, or equiv. The origin of the story and novel is traced from Homer to the Medieval Greek and Latin romance writers. Selections from Petronius, the *Cena Trimalchionis,* and from Apuleius, *Cupid and Psyche.* Staff

202. Drama. II. 3 hr. PR: Latin 109, 110, or equiv. A brief history of the origin and development of Greek and Roman drama. The *Menaechmi* of Plautus, the *Andria* of Terence, and the *Medea* of Seneca are read in Latin. Staff

203. Oratory. II. 3 hr. PR: Latin 109, 110, or equiv. A survey of Greek and Roman oratory is given and part of the first book of Cicero's *De Oratore;* selections from Quintilian's *Institutes* and from Tacitus' *Dialogue de Oratoribus* are read in Latin. Staff

227. Graduate Reading in Latin. No credit. A special course to prepare Ph.D. candidates for the reading examination in Latin. Staff

231. Satire. II. 3 hr. PR: Latin 109, 110, or equiv. Greek satirical writings and the origin of the Roman satire. Selections in Latin from the *Satires* and *Epistles* of Horace, and from the *Satires* of Persius and Juvenal. Staff

234. History. I. 3 hr. PR: Latin 109, 110, or equiv. The origin and development of Roman historiography and its Greek antecedents. Selections in Latin from Livy's *History,* from Tacitus' *Agricola,* and from Suetonius' *Julius Caesar.* Staff

235. Epic. I. 3 hr. PR: Latin 109, 110, or equiv. The origin and development of the Greek and Roman epic. Selections from Vergil's *Aeneid,* from Lucretius' *De Rerum Natura,* and from the earlier and later epic poets in Latin. Staff

236. Philosophy. II. 3 hr. PR: Latin 109, 110, or equiv. The origin and development of Greek philosophy and its influence upon Roman philosophy. Selections from Cicero's *Tusculan Disputations* on the immortality of the soul and from Seneca's *Epistles* in Latin. Staff

292. Pro-Seminar in Latin Literature. 1-6 hr. Special topics. Staff

Graduate Division

301. Master's Thesis. 3-6 hr. Staff

392. Seminar in Latin Literature. 1-6 hr. Special topics. Staff

GREEK

Lower Division

1. Elementary Greek. I. 3 hr. Staff

2. Elementary Greek. II. 3 hr. Continuation of Greek 1. Staff

3. Intermediate Greek. I. 3 hr. Staff

4. Intermediate Greek. II. 3 hr. Continuation of Greek 3. Staff

Upper Division

109. Selections from Medieval and Modern Greek Literature. I. 3 hr. Staff

110. Selections from the Attic Orators. II. 3 hr. Staff

121. Survey of Greek Literature. I. 3 hr. PR: Greek 109, 110, or consent. Staff

122. Survey of Greek Literature. II. 3 hr. Continuation of Greek 121. Staff

Upper Division and Graduate

292. Pro-Seminar in Greek Literature. 1-6 hr. Special topics. Staff

Graduate Division

392. Seminar in Greek Literature. 1-6 hr. Special topics. Staff

HEBREW

Lower Division

1. Elementary Hebrew. I. 3 hr. Mr. Wilner

2. Elementary Hebrew. II. 3 hr. Continuation of Hebrew 1. Mr. Wilner

3. Intermediate Hebrew. I. 3 hr. Reading of Hebrew prose. Mr. Wilner

4. Intermediate Hebrew. II. 3 hr. Continuation of Hebrew 3. Mr. Wilner

LINGUISTICS

Upper Division

111. Introduction to Structural Linguistics. I. 3 hr. Recommended for foreign language majors. Staff

Upper Division and Graduate

211. Middle High German. I. 3 hr. PR: 12 hr. of German from upper division. Study of the linguistic developments of Middle High German from the eleventh to the fifteenth centuries with illustrative readings from the *Nibelungelied.* Mr. Stilwell

212. Middle High German. II. 3 hr. Continuation of Linguistics 211 with illustrative readings from the Middle High German lyric poets and the courtly epics. Mr. Stilwell

225. Comparative Grammar of Greek and Latin. I. 3 hr. PR: Consent. Staff

226. Italic Dialects. II. 3 hr. PR: Consent. Staff

227. Vulgar Latin. II. 3 hr. PR: Latin 12, 22, or equiv. Selections from Latin inscriptions and later Latin literature are studied to illustrate the development of the Latin language from its earliest times to its passing into the Romance languages. Staff

231. *See* French 231.

241. *See* French 241 *and* Spanish 241.

251. History of the German Language. I. 3 hr. PR: 18 hr. of German, or consent. A study of the historical development of standard German with emphasis on its relationships to the other German languages and dialects. Mr. Stilwell

252. Comparative Germanic Linguistics. II. 3 hr. PR: Linguistics 251, or consent. A comparative study of Gothic, Old English, Old Norse, Old High German and Old Saxon. Mr. Stilwell

271. Old English. I. 3 hr. PR: Consent. Elementary study of Old West Saxon with illustrative materials from prose and poetry. Mr. Stilwell

272. Old English. II. 3 hr. Continuation of Linguistics 271. Comparison of the Old English dialects, with extensive illustrative readings, especially in *Beowulf*. Mr. Stilwell

281. Old Norse. I. 3 hr. PR: Consent. Elementary study of Old West Norse prose. Mr. Stilwell

282. Old Norse. II. 3 hr. Continuation of Linguistics 281. Readings in various Old Icelandic sagas; introduction to Old Norse poetry. Mr. Stilwell

285. Elementary Sanskrit. I. 3 hr. PR: Consent. Staff

286. Elementary Sanskrit. II. 3 hr. Continuation of Linguistics 285. Staff

290. Old French. II. 3 hr. PR: Consent. Mr. Manning

292. Pro-Seminar in Linguistics. 1-6 hr. Special topics. Staff

296. Old Spanish. II. 3 hr. PR: Consent. Staff

Graduate Division

392. Seminar in Linguistics. 1-6 hr. Special topics. Staff

LANGUAGE TEACHING METHODS

Upper Division

151. *See* French 151 *and* Spanish 151.

152. *See* French 152 *and* Spanish 152.

Upper Division and Graduate

221. Methods and Materials in the Teaching of Foreign Languages. I. 2 hr. Required of all prospective elementary and secondary school teachers majoring in a foreign language. Staff

222. Language Laboratory Techniques. II. 2 hr. Required of all candidates for a graduate degree in a foreign language. Staff

242. *See* French 242 *and* Spanish 242.

BIBLIOGRAPHY

Upper Division and Graduate

265. Methods of Research. I. 3 hr. For students of French, German, or Spanish. Mr. Singer

GEOLOGY AND GEOGRAPHY

Professors Wells, Fridley, Heald, Ludlum, and Price; Associate Professor Donaldson; Assistant Professors Burford, Corbett, and Little; Instructor (part-time) Gillespie.

Bachelor of Science in Geology

Each candidate for the Bachelor of Science degree is required to present credit for Geol. 266 or its equivalent. Students planning to seek employment in the petroleum industry should take Math. 116 and 117. A total of 132 hours is required, of which a minimum of 124 hours must be established in subjects exclusive of credits earned in required Physical Education, required Military or Air Science, English 0, and Math. 2.

At least 9 hours of electives must be taken in the humanities or social sciences.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Math. 3	3	Math. 4	3
Physics 1	4	Physics 2	4
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed. 1	1	Phys. Ed. 2	1
	16		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Geol. 1	3	Geol. 3	3
Geol. 2	1	Geol. 4	1
Chem. 1	4	Chem. 2	4
Math. 15	4	C.E. 1	2
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
		Electives	3
	17		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Geol. 127	2	Geol. 161	3
Geol. 151	3	Geol. 185	4
Geol. 152	1	English 126	3
Geol. 172	3	Electives	7
Geol. 184	4		
Electives	5		
	18		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Geol. 221	3	Geol. electives	4
Geol. 231	4	Other electives	13
Geol. electives	4		
Other electives	6		
	17		17

Bachelor of Arts in Geology

A minimum of 124 hours must be established in subjects exclusive of credit earned in required Physical Education, required Military Science and Air Science, English 0, and Math. 2.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Math. 2 or 3	3	Math. 4	3
Physics 1	4	Physics 2	4
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed.	1	Phys. Ed.	1
	16		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Geol. 1	3	Geol. 3	3
Geol. 2	1	Geol. 4	1
Chem. 1	4	Chem. 2	4
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives		Electives	
*Group 2	3-4	*Group 2	3-4
	16-17		16-17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Art 115	3	Geol. 129	2
Geol. 107	3	Geol. 161	3
Geol. 151	3	Chem. elective	3
Geol. 152	1	Elective	3
Geol. 184	4	***Group 4	3
Electives		**Group 1	3-4
**Group 1	3-4		
	17-18		17-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Geol. 127	2	English 126	3
Geol. 221	3	Electives	14
Geol. 231	4		
Electives	8		
	17		17

*Economics, Political Science, or Social Science (general course)
**History or Humanities (general course)
***Art, Home Economics, Library Science, or Speech

When possible complete lower-division work in the first two years. Leave the courses numbered 200 and above for the senior year.

Courses of Instruction

GEOLOGY

Lower Division

1. Physical Geology. I, II. 3 hr. Description of composition and structure of earth; physical processes which change earth's surface. Must be accompanied by Geol. 2 in order to meet requirements for 4 hr. credit in a laboratory science in physical geology. Staff

2. Physical Geology Laboratory. I, II. 1 hr. Accompanies Geol. 1. Staff

3. Historical Geology. I, II. 3 hr. PR: Geol. 1. Evolution of earth and its inhabitants. (Geol. 3 must be accompanied by Geol. 4 in order to meet requirements for 4 hr. of a laboratory science in historical geology.) Mr. Wells

4. Historical Geology Laboratory. I, II. 1 hr. Accompanies Geol. 3. Mr. Wells

5. Introduction to Geology. I, II. 3 hr. Designed especially for nonscience majors. Composition and structure of earth and the geologic processes which shape its surface. (Geol. 5 must be accompanied by Geol. 2 in order to meet the requirements for 4 hr. credit in a laboratory science.) Mr. Donaldson

Upper Division

125. Geologic Drafting. I. 1 hr. PR: Geol. 2, 4. Staff

127. Map Interpretation. I. 2 hr. PR: Geol. 2, 4. Relation of earth structure and history to land forms as shown on topographic maps. Mr. Burford

129. Cartography. II. 2 hr. Techniques, principles, and practices in art of map and graph construction. Lettering and drawing instruments used in copy and field lay-out designed for reproduction. Mr. Little

151. Structural Geology. I, II. 3 hr. PR: Geol. 3. Shape and position of rock masses in the earth's crust; mechanical principles underlying various types of rock formation; indication of economic importance of deformed rock structures with respect to recovery of mineral products. Mr. Burford

152. Structural Geology Laboratory. I, II. 1 hr. PR: Geol. 3. A laboratory course to accompany or follow the lecture course, Geol. 151. Mr. Burford

161. Field Geology. II. 3 hr. PR: Geol. 151, Geol. 184 or E.M. 106. An introduction to actual field techniques utilized by geologists in mapping and reporting on geology of an area. Local areas in detail; 2-day field trip required for regional study. Mr. Donaldson

172. Economic Geology: Nonmetallics. I. 3 hr. PR: Geol. 1, 2. Occurrence, formation, and use of nonmetallic mineral substances, including building materials and chemicals. Mr. Corbett

184. Mineralogy. I. 4 hr. PR: 1 year each of geology and chemistry. Elements of crystallography and systematic study of minerals except silicates. Identification of minerals by their physical properties supplemented by blow-pipe analysis. Mr. Heald

185. Mineralogy and Petrography. II. 4 hr. PR: Geol. 184. Description, mode of occurrence, and classification of silicate minerals and rocks. Mr. Heald

201. Physical Geology for Teachers. S. 3 hr. PR: High school teaching certificate, and consent. Composition and structure of earth and the geologic processes which shape its surface. Staff

202. Physical Geology Laboratory for Teachers. S. 1 hr. Accompanies Geol. 201. A laboratory and field study of earth materials and features, and a study of topographic and geologic maps used to represent them. Staff

221. Geomorphology. I. 3 hr. PR: Geol. 151. Study of surface features of eastern United States. Mr. Fridley

222. Geomorphology. II. 3 hr. PR: Geol. 151. Continuation of Geol. 221. Surface features of western United States. Mr. Fridley

228. Photogeology. II. 3 hr. PR: Geol. 127, 151. Instruction in basic and advanced techniques of air photo interpretation. Mr. Burford

231. Invertebrate Paleontology. I, II. 4 hr. PR: Geol. 3, 4. Invertebrate fossils; their biologic classification, evolutionary development, and use in correlation of strata. Mr. Wells

235. Introductory Paleobotany. I. 4 hr. PR: Geol. 3 and/or Bot. 2. A resume of the development of principal plant groups through the ages, present distribution, mode of occurrence and index species, methods of collection. Mr. Gillespie

236. Advanced Paleobotany. II. 4 hr. Continuation of Geol. 235. Mr. Gillespie

239. Seminar in Paleobotany. I, II. 1-2 hr. per sem., 6 hr. max. PR: Geol. 235. Mr. Gillespie

240. Principles of Stratigraphy. II. 4 hr. PR: Geol. 231. Study of principles of rock and time correlation, emphasis on their application to the stratigraphy of West Virginia. Mr. Donaldson

246. Sedimentation. I. 3 hr. PR: Geol. 185. Origin of sedimentary rocks; principles involved in interpretation of ancient geography, climates, animals, and plants, i.e., basic foundations for stratigraphy. Mr. Donaldson

247. Sedimentation Laboratory. I. 1 hr. PR: Geol. 185. A laboratory course to accompany or follow the lecture course, Geol. 246. Mr. Donaldson

263. Hydrology. I. 3 hr. PR: Geol. 1 or consent. A study of the principles of ground-water hydrology; the occurrence, development, uses, and conservation of ground water. The hydrologic cycle emphasized. Mr. Burford

266. Field Geology. SI. 6 hr. PR: Geol. 161, 185, 231. Practical experience in detailed geological field procedures and mapping. Living expenses are in addition to tuition and must be paid on or before registering. Mr. Wells

269. X-Ray Diffraction. I, II. 2 hr. The theory of X-ray diffraction and application to the analysis of crystalline materials using the powder camera and X-ray diffractometer. Open to advanced students in geology, chemistry, engineering and related fields with consent of instructor. Mr. Heald

270. Geology and Mineral Resources. S. 3 hr. PR: Open to students in education having Geol. 1 or its equivalent and consent. A general survey of the character, origin, and distribution of land forms and the natural mineral resources, including mineral fuels, nonmetallic minerals, ore deposits, and ground water with special reference to West Virginia and neighboring regions. Staff

271. Economic Geology: Ore Deposits. II. 3 hr. PR: Geol. 172, 184. Mineral composition, geologic features, and distribution of deposits of principal useful metallic minerals. Mr. Corbett

272. Petroleum Geology. II. 3 hr. PR: Geol. 151. Origin, geologic distribution, methods of exploration and exploitation, uses and future reserves of petroleum and natural gas in the world, with special attention to the U. S. Mr. Burford

273. Petroleum Geology Laboratory. I, II. 1 hr. PR: Geol. 151. Applications of geologic methods in the search for and development of petroleum resources. Graphic methods in structural and stratigraphic studies, interpretation of lithologic samples and mechanical well logs. Mr. Burford

274. Seminar in Economic Geology. I, II. 1-2 hr. per sem. Staff

275. Coal Geology. I. 4 hr. PR: Geol. 4 Study of origin, nature, and distribution of coal deposits. Includes an introduction to microscopic study of coal specimens. Staff

276. Advanced Coal Geology. II. 4 hr. Continuation of Geol. 275. Staff

285. Optical Mineralogy. I. 4 hr. PR: Geol. 185 and one year of physics. Principles and practice in use of the petrographic microscope in identification of minerals. Emphasis on determinations by immersion method. Mr. Heald

286. Petrology. II. 4 hr. PR: Geol. 285. Composition, texture, occurrence, and origin of rocks. Study of hand specimens and thin sections. Mr. Heald

290. Geologic Problems. I or II. 2-3 hr. Specialized work for seniors and graduates. Consult departmental adviser before registration. Staff

291. Seminar. I. 1 hr. Mr. Fridley

292. Seminar. II. 1 hr. Mr. Donaldson

294. Introductory Geochemistry. I. 3 hr. PR: Geol. 185 or consent. Evolution of the earth as suggested by chemical and physical data, followed by topics of current interest, including geologic thermometry, oxidation potential and pH, and geochemical prospecting. Mr. Corbett

295. Geochemistry. II. 3 hr. PR: Geol. 185 or consent. Mineral systems at low temperatures and low pressures considered in terms of partial pressure, oxidation potential, and pH. Laboratory study includes directed investigation of a topic of interest to the student. Mr. Corbett

329. Problems in Geomorphology. I, II. 1-4 hr. PR: Geol. 222. Mr. Fridley

332. Micropaleontology. II. 4 hr. PR: Geol. 231. Identification of Forminifera and Ostracoda with aid of microscope. Emphasis upon classification, nomenclature, and use of paleontological literature. Mr. Wells

334. Problems in Paleontology. I, II. 1-4 hr. PR: Geol. 231. Mr. Wells

339. Problems in Paleobotany. I, II. 1-4 hr. PR: Geol. 235. Mr. Gillespie

348. Problems in Sedimentation. I, II. 1-4 hr. PR: Geol. 246. Mr. Donaldson

349. Problems in Stratigraphy. I, II. 1-4 hr. PR: Geol. 240. Mr. Donaldson

359. Problems in Structural Geology. I, II. 1-4 hr. PR: Geol. 151. Mr. Burford

366. Problems in Field Geology. I, II. 1-6 hr. PR: Geol. 161. Mr. Donaldson

374. Problems in Advanced Economic Geology. I, II. 1-4 hr. PR: Geol. 271. Staff

376. Problems in Coal Geology. I, II. 1-4 hr. PR: Geol. 276. Staff

387. Advanced Petrology. I. 3 hr. PR: Geol. 286. A study of the composition, classification, and origin of the igneous and metamorphic rocks. Laboratory work consists of a study of crystalline rocks by microscopical methods. Mr. Heald

388. Problems in Mineralogy and Petrology. I, II. 1-4 hr. PR: Geol. 286. Mr. Heald

397, 398. Research. I, II. 1-5 hr., 6 hr. max. Specialized work for advanced students based upon field or laboratory evidence and reported upon in candidacy for master's degree. Staff

399. Research. I, II. 1-6 hr. per sem., 12 hr. max. Open only to Ph.D. candidates. Staff

GEOGRAPHY

Lower Division

7. Introductory Geography. I, II. 3 hr. Relationship between environment and forms of life; emphasis on physiography and climatology. Mr. Little

Upper Division

109. Economic Geography. I, II. 3 hr. Regional method of treating agricultural, industrial, and commercial development of each of various countries of the world. Mr. Little

116. Geography of North America. II. 3 hr. A regional study of the area north of the Rio Grande with interpretation of geographic factors influencing growth and problems connected with future development. Mr. Little

118. Geography of Europe. I. 3 hr. Geographic description of the continent as a whole, its political divisions, followed by study of individual regions. Mr. Little

215. Industrial Geography. I. 3 hr. Factors which contribute to development of major industrial regions; detailed analysis of selected industries. Mr. Little

216. Urban Geography. II. 3 hr. Study of present-day American cities from their distribution, function and internal structure. Field work in local urban centers and their tributary areas will be made. Mr. Little

219. Seminar in Geography. I, II. 1-3 hr. per sem. PR: 12 hr. of economics, history, geology. Mr. Little

Graduate Division

319. Problems in Geography. I, II. 1-4 hr. PR: 12 hr. of social studies and geology. Mr. Little

HISTORY

Professors Caruso, Ennis, Golay, and Summers; Associate Professors Bagby (Acting Chairman), Barns, Levine, and Steel; Assistant Professors Houston, Krauskopf, and Rosenbaum; Instructor Hicks.

History majors are required to complete 18 hours in upper-division history courses. Six hours in political science and 6 hours in economics are also required. Students who expect to major in history should complete the following subjects, or their equivalents, in the first and second years: English, 6 hr.; French or German, 12 hr.; history, 12 hr., which should include Hist. 1 and 2, and Hist. 52 and 53; science, 6 hr.; and economics, 6 hr. One year's work in the Humanities may be substituted for Hist. 1 and 2.

Curriculum for A.B. Degree With Major in History

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3	Electives		Electives,	
Foreign language	3	Foreign language	3	Group 3*	3	Group 3*	3
Laboratory Sci.	4	Laboratory Sci.	3	Foreign language	3	Foreign language	3
Hist. 1	3	Hist. 2	3	Hist. 52	3	Hist. 53	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2	Economics 1	3	Economics 2	3
Phys. Ed.	1	Phys. Ed.	1	Pol. Science 1	3	Pol. Science 2	3
				Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
				Phys. Ed.	1	Phys. Ed.	1
	14-16		14-16		16-18		16-18

*Teacher's Certification. In Group 3, English 3 and 4 should be selected.

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
History†	6	History	6	History	6	History	3-6
Minor	3	Minor	3	Minor	3-6	Minor or	
Electives	6-9	Electives	6-9	Electives	6-9	Electives	3-6
						Electives	6-9
	15-18		15-18		15-18		15-18

†History courses numbered 100-199 are recommended.

Courses of Instruction

Lower Division††

1. World Civilization From the Earliest Times to the Reformation. I, II. 3 hr. For freshmen. The development of social, economic, and political institutions. Messrs. Ennis, Houston, Levine, Rosenbaum, and Mrs. Hicks

2. World Civilization From the Reformation to the Present. I, II. 3 hr. For freshmen. Continuation of Hist. 1.
Messrs. Ennis, Houston, Levine, Rosenbaum, and Mrs. Hicks

52. Growth of American Nation to 1865. I, II. 3 hr. Primarily for sophomores.
Messrs. Bagby, Barns, Caruso, Steel, Summers, and Miss Krauskopf

53. Making of Modern America, 1865 to Present. I, II. 3 hr. Primarily for sophomores.
Messrs. Bagby, Barns, Caruso, Steel, Summers, and Miss Krauskopf

Upper Division

101. History of Ancient Times: Stone Age to the Fall of Rome.* I. 3 hr. Staff

102. Medieval Europe: Fall of Rome to Renaissance.* I. 3 hr. Staff

103. Modern Europe, 1550-1815. I. 3 hr. Staff

104. Modern Europe, 1815 to Present. II. 3 hr. Staff

117. History of France from Richelieu to the Fourth Republic.* I or II. 3 hr. Staff

118. History of Germany Since the Thirty Years' War.* I or II. 3 hr. Mr. Houston

120. Latin-American History: Colonial Period and Wars of Independence. I. 3 hr. PR: 1 year of history or consent. Mr. Caruso

121. Latin America Since 1824. II. 3 hr. Continuation of Hist. 120. Mr. Caruso

133. British Civilization to 1660. I. 3 hr. Mr. Levine

134. British Civilization Since 1660. II. 3 hr. Mr. Levine

149. United States and Pennsylvania. I or II. 3 hr. Mr. Barns

150. West Virginia. I, II. 3 hr. Mr. Summers

††All first- and second-year courses are offered as lower-division "year-courses." These courses run through the year, but in no case is the first half-year a prerequisite for the second half. For example, Hist. 1 is not a prerequisite for Hist. 2. Hist. 1 and 2 make up the introductory first year in history. Hist. 52 and 53 are primarily for sophomores but are open to freshmen.

*PR: One college course in European history, or consent.

151. The American Colonial and Revolutionary Experience. I or II. 3 hr. Miss Krauskopf

152. The United States from the Articles of Confederation to the Civil War. I or II. 3 hr. Mr. Steel

158. The United States from 1865 to 1918. I or II. 3 hr. Mr. Summers

164. History of Asia. I. 3 hr. Mr. Ennis

169. History of the United States Since 1918. I or II. 3 hr. Mr. Bagby

201. Modern Problems in the Ancient and Medieval Worlds. I or II. 3 hr. PR: At least junior standing. Staff

202. Problems in European History Since 1500. I, II. 3 hr. PR: Hist. 1 and 2 or equiv., or consent. Mr. Levine

205. Medieval Cultural History. I or II. 3 hr. PR: Senior or graduate standing with one year of European history, or consent. Staff

206. The Renaissance and the Reformation. II. 3 hr. PR: For seniors and graduate students with one year of European history, or consent. Staff

207. Cultural Europe, 1600-1800. I or II. 3 hr. PR: For seniors and graduate students with one year of European history, or consent. Staff

208. Cultural Europe, 19th Century. I or II. 3 hr. Continuation of Hist. 207. Staff

209. French Revolution. I. 3 hr. PR: Senior or graduate standing with one year of European history, or consent. Staff

210. Napoleonic Era. II. 3 hr. PR: Senior or graduate standing with one year of European history, or consent. Staff

219. History of Russia from Varangians to Bolsheviks. I. 3 hr. PR: Hist. 1 or 2 or equiv. Mr. Rosenbaum

220. History of Contemporary Russia. I or II. 3 hr. PR: Hist. 2 or equiv. Mr. Rosenbaum

231. The British Empire. I. 3 hr. PR: Hist. 134 or consent. Staff

233. English Social History, Fourteenth to Eighteenth Century. I, II. 3 hr. PR: Junior standing. Mr. Levine

234. English Social History, Eighteenth Century to Present. I or II. 3 hr. PR: Junior standing. Mr. Levine

241. Europe From 1914 to 1939. I. 3 hr. PR: Hist. 2 or equiv. Mr. Houston

242. Europe Since 1939. II. 3 hr. PR: Hist. 2 or equiv. Mr. Houston

249. The American Frontier East of the Mississippi. I or II. 3 hr. PR: Hist. 52 or 53 or equiv. Mr. Caruso

250. Economic and Social Development of West Virginia. I or II. 3 hr. PR: Consent. Primarily for teachers. Mr. Summers

251. American Colonial History. I or II. 3 hr. Miss Krauskopf

252. The American Revolution and the Confederation, 1763-1789. I or II. 3 hr. Miss Krauskopf

254. Trans-Mississippi West. I or II. 3 hr. Miss Krauskopf

255. The Jacksonian Era. II. 3 hr. PR: Hist. 52. Mr. Steel

256. The Old South. I, II. 3 hr. PR: Hist. 52. Mr. Steel

257. The American Civil War. I, II. 3 hr. For seniors and graduate students, or consent. Mr. Summers

258. The Cleveland Era. I or II. 3 hr. For seniors and graduate students, or consent. Mr. Summers

259. The United States from McKinley to the New Deal, 1898-1933. I. 3 hr. PR: Seniors and graduate students, or consent. Mr. Barns

260. American Diplomacy to 1901. I. 3 hr. PR: Hist. 52 and 53, or equiv. Mr. Bagby

261. American Foreign Policy and Diplomacy, 1901 to Present. II. 3 hr. PR: Hist. 53 or equiv. Mr. Bagby

262. Problems of the Pacific. II. 3 hr. PR: Hist. 164. Mr. Ennis

264. The ABC Powers of Latin America. I, II. 3 hr. PR: Hist. 120, 121. Mr. Caruso

269. Recent American History. I or II. 3 hr. For seniors and graduate students, or consent. Mr. Barns

276. Introduction to Historical Research and Bibliography. I, II. 3 hr. This course prescribed in fourth year for all history majors. Staff

277. The Literature of American History. I or II. 3 hr. Open to graduate students in history and to seniors majoring in history. Staff

279. American Economic History to 1865. I. 3 hr. Mr. Barns

280. American Economic History Since 1865. II. 3 hr. Mr. Barns

281. The American Labor Movement. I or II. 3 hr. Mr. Barns

282. History of American Agriculture. I or II. 3 hr. Mr. Barns

290. Intellectual and Social History of the United States to 1876. I or II. 3 hr. Mr. Steel

291. Intellectual and Social History of the United States Since 1876. I or II. 3 hr. Mr. Steel

Graduate Division

301, 302. Thesis. I, II. 2 or 3 hr. per sem. Staff

303, 304. Research. I, II. 6 hr. per sem. Staff

305, 306. Directed Topical Reading. I or II. 3-6 hr. per sem. Staff

333. Seminar in British History: Tudor Period. I or II. 3 hr. PR: Graduate standing. Mr. Levine

349, 350. Problems in Local and Regional History. I, II. 3 hr. per sem. Mr. Barns and Mr. Summers

351. Social Aspects of the Appalachian Frontier. I or II. 3 hr. PR: Graduate standing. Mr. Caruso

356. Seminar in American History, 1492-1789. I, II. 3 hr. Miss Krauskopf

357. Seminar in American History, 1763-1865. I, II. 3 hr. Mr. Steel

358. Seminar in American History, 1850-1898. I, II. 3 hr. Mr. Summers

359. Seminar in American History, 1890-Present. I, II. 3 hr. Mr. Bagby

360. Rise of Nationalism in Asia. I or II. 3 hr. Mr. Ennis

361. Contributions of Asia to Western Civilization. I or II. 3 hr. Mr. Ennis

384, 385. Problems in British Imperialism and World Politics. I, II. 3 hr. per sem. Staff

386. Imperial Germany, 1871-1918. I or II. 3 hr. Staff

387. The Weimar and Bonn Republics. I or II. 3 hr. Mr. Golay

389. Problems in Revolutionary Europe, 1763-1815. I or II. 3 hr. Staff

HOME ECONOMICS

Professor Nolan (Adviser) and Staff.

The degree of Bachelor of Arts with a major in Home Economics is offered by the College of Arts and Sciences. Courses for this program of study are provided by the College of Arts and Sciences and by the College of Agriculture, Forestry, and Home Economics. In order to qualify for this degree, a student must meet the general requirements for the A.B. degree as outlined on page 144. The general courses listed on page 200 are taught by the Home Economics faculty of the College of Agriculture, Forestry, and Home Economics and are approved for fulfillment of the requirements of a major in the College of Arts and Sciences.

The offerings in the Division of Home Economics are designed to fulfill a variety of educational needs. The goal is to develop professional people with knowledge and skills which can contribute to the effectiveness of family living.

Vocational opportunities for home economics far outnumber the trained graduates available for jobs. Those who are employed work in a variety of positions—high school or college teachers, extension workers, dietitians, nursery school supervisors, commercial demonstrators, journalists, and radio and television programmers. Some find opportunities in retailing, interior decorating, or home planning centers, Others choose careers in research or social service.

A student desiring to obtain a high-school teaching certificate in the field of Home Economics should inform her adviser at the beginning of the first semester so that a proper program may be planned.

Suggested Home Economics Curriculum

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3	Electives, Group 3*	3	Electives, Group 3*	3
Biol.,* Phys. Sci.* or Chem.**	4	Biol.,* Phys. Sci.* or Chem.**	4	Electives, Group 2*	3-4	Electives, Group 2*	3-4
Foreign language	3	Foreign language	3	Home Econ. 15* or 17	3	Home Econ. 12, 17 or 23	3
Home Econ. 1, 2,† or 3 (any two)	4	Home Econ. 1, 2,† or 3 (two not taken 1st Sem.)	4	Group 1	3-4	Group 1	3-4
Elective (Music 10 or Art 30*)	2	Elective (Music 10 or Art 30*)	2	Foreign language	3	Foreign language	3
Phys. Ed.	2	Phys. Ed.	1	Phys. Ed.	1	Phys. Ed.	1
				Electives	2	Electives	2
	17		17		17		17-18

*The following notes apply to those who wish to qualify for a secondary teacher's certificate:
(a) Biology or Physical Science required.
(b) Music 10 and Art 30 or 130 required.
(c) Group 3—English or American literature required.
(d) Group 2—Social Science required.
(e) Home Econ. 15 required.

**Required of those planning to major in foods and/or nutrition.

†Students who exempt Home Econ. 2 by placement test will take Home Econ. 12.

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Home Econ. 114	3	Home Econ. 106	3	Home Econ. electives*	4-6	Home Econ. electives*	3-6
English 18*	3	Electives, Group 5*	3-4	Minor	3	Electives	13
Home Econ. electives*	3-5	Home Econ. electives	3-5	Electives	9		
Minor	3	Minor	3				
Elective	2	Electives	1-4				
	17		15		16		16

Courses of Instruction

1. Elementary Nutrition. I, II. 3 hr. Essentials of adequate diet; application with particular reference to needs of college students. Miss Graf

2. Elementary Clothing. I, II. 2 hr. Problems in selection and construction of clothing. For freshmen and others who do not pass placement test. Miss Dietrich

3. Introduction to Related Art. I, II. 2 hr. The use of the design elements and the application of the design principles to stimulate imagination and creative ability and to develop discriminating judgment in selection and arrangement of materials used for the individual and the home. Mrs. Baisden

4. Elementary Management. I, II. 2 hr. The application of management to the use of time, money, energy, and other sources to achieve individual goals. Staff

12. Intermediate Clothing. I, II. 3 hr. PR: Home Econ. 2 or exemption of Home Econ. 2 by placement test. Development of judgment in selection and skill in construction. Emphasis on pattern alterations and fittings. Garments constructed in woolen, synthetic and cotton fabrics. One child's garment included. Miss Weibel

15. Food Selection and Preparation. I, II. 3 hr. PR: Home Econ. 1, Chem. 2, or Physical Sci. 2, or consent. (2 lec., 1 lab.). Basic food selection, care, and preparation. Emphasis is placed on the chemical and physical properties of foods and reactions which occur during processing. Mrs. Jones

17. Textiles. I, II. 3 hr. (2 lec., 1 lab.). Textile fibers and fabrics studied with view to their use in dress and in the home. Characteristics of the major fibers and their suitability to various uses. Study of standard and novelty materials with emphasis on appropriate use and care. Miss Dietrich

23. Housing Design, I, II. 3 hr. PR: Home Econ. 3 or consent. Housing and home planning as they relate to family living. Selection, arrangement, and use of interior and exterior space for activities carried on, in and around the home. Mrs. Baisden

101. Nutrition. I. 3 hr. PR: Biochem. 139 or consent. (2 lec., 1 lab.). The role of food nutrients in the physiological and biochemical processes of the body; nutritional needs of healthy individuals under ordinary conditions and in periods of physiological stress. Miss Yearick

102. Clothing Selection. I. 2 hr. PR: Home Econ. 3 or consent. (2 lec.). Selection of clothing for whole family from viewpoint of design, color and economy. Clothing inventories and buying plans. Miss Weibel

105. Planning and Serving Family Meals. I or II. 2 hr. A practical course in food selection, preparation, and service. Course is based on student needs and interests. (Not open to Home Economics students.) Mrs. Jones

106. Child Development. I, II. 3 hr. PR: Psych. 1 or 3, or Ed. 105 or 106. (2 lec.). Child from toddler through the nursery-school age. University Nursery School used for observing pre-school children. 2 hr. per week of observation and participation. Mrs. Ayersman

113. House Decoration. II. 3 hr. Not open to Home Economics students. (2 lec., 1 lab.). Materials and furnishings that go into decorating and furnishing a home, with emphasis on cost, buying, and reconditioning. Staff

114. Management of Family Living. I, II. 3 hr. The contemporary setting of problems, values, and goals in the area of family living with some attention to relevant antecedent factors in the mate selection process. Application of management principles to achieve greater competence in the maternal, parental, and teacher roles. Lecture, discussions, and audio-visual aids. Mr. Taylor

115. Meal Planning, Preparation, and Service. I, II. 3 hr. PR: Home Econ. 15 or consent. (1 lec., 1 3-hr. lab.). Selection and purchase of foods; planning, preparing, and serving meals with emphasis on time, energy, and money management. Mrs. Jones

116. Home Nursing. II. 2 hr. (1 lec., 2-hr. lab.). Practices to promote family health and caring for minor illness. Offered in 1964-65 and alternate years. Staff

117. Textile Buying. II. 2 hr. PR: Home Econ. 17. Lecture and laboratory combined. Buying of textiles for all types of clothing and for household. At least one field trip required. Miss Dietrich

121. Nutrition and the Family. II. 3 hr. (2 lec., 1 rec.). PR: Home Econ 1. A family centered approach to nutrition, emphasizing the different needs of its members. Opportunity to explore nutritional problems and their solutions through contacts in the community. Miss Graf

123. Interior Design. I, II. 3 hr. PR: Home Econ. 23. (2 lec., 1 lab.). The practical and aesthetic aspects of coordinating the furnishings, background, accessories, lighting, and space of a house for family living. Mrs. Baisden

124. Demonstration Techniques. I, II. 2 hr. PR: Minimum of 4 hr. in each of four areas of home economics or consent. Lecture demonstration as a means of presenting home economics materials to groups. Development and presentation of demonstrations suitable for secondary schools and for use with adult groups. Mrs. Armstrong

125. Food for Special Occasions. II. 2 hr. PR: Home Econ. 15 or consent. Unusual foods and unusual methods of preparing and serving everyday foods. Preparation, organization, and management involved in foods for social functions. Offered in 1963-64 and alternate years. Mrs. Jones

126. Infant Development. I. 2 hr. (1 lec., 1 lab.). Development characteristics and problems during the prenatal period and the first eighteen months with implications for guidance and care. Recommended to precede enrollment in Home Econ. 234. Miss Brown

132. Clothing Techniques. II. 2 hr. Not open to home economics students. Techniques for simple garment construction, remodeling, alterations and repairs. Problems adapted to need of individual students. Especially planned for Arts and Sciences students and young homemakers. Miss Dietrich

133. Craft Design. I, II. 2 hr. PR: Home Econ. 3 or Art 122. Creative design with emphasis on originality, design quality and the development of craft techniques in several of the following: stitchery, weaving, enameling, block printing, silk screening, batik, and other art media. Mrs. Baisden

134. Principles of Home Management. I, II. 2 hr. An intermediate course in management as applied to the family and homemaking. Detailed consideration of family goals and resources. Mrs. Armstrong

181. Problems in Nutrition. I, II. 1-4 hr. PR: Consent. Staff

182. Problems in Clothing Construction. I, II. 1-4 hr. PR: Consent. Staff

183. Problems in Related Art. I, II. 1-4 hr. PR: Consent. Staff

184. Problems in Home Management. I, II. 1-4 hr. PR: Consent. Staff

185. Problems in Foods. I, II. 1-4 hr. PR: Consent. Staff

186. Problems in Child Development. I, II. 1-4 hr. PR: Consent. Staff

187. Problems in Textiles. I, II. 1-4 hr. PR: Consent. Staff

201. Diet Therapy. II. 3 hr. PR: Home Econ. 101, Zool. 171. Adaptations of normal diet for disease whose prevention or treatment is largely influenced by diet. Offered in 1964-65 and alternate years. Miss Yearick

205. Experimental Cookery. II. 3 hr. PR: Home Econ. 15, Chem. 131. (1-hr. lec., 2 2-hr. lab.). Utensils, ingredients, temperature, manipulation, and cooking methods as they affect quality of cooked products. Offered in 1964-65 and alternate years. Mrs. Jones

206. Observation and Participation in the Nursery School. II. 1-3 hr. PR: Home Econ. 106. Directed experience in working with children in a nursery-school situation. Laboratory and conference. Mrs. Ayersman

209. Evaluation in Home Economics. I. 3 hr. PR: 30 hr. of home economics, 7 hr. of Education. Experience in selecting, devising, and using evaluation devices for appraising student progress toward desired goals in home economics education. Offered in 1964-65 and alternate years. Miss Brown

211. Readings in Nutrition. II. 1-4 hr. PR: Home Econ. 101 or consent. Reviews of current literature and of present research. Topics depend upon need and interests of class members. Miss Yearick

212. Advanced Clothing Construction. II. 2 hr. PR: Home Econ. 233 or consent. Offers opportunity for creative expression and for understanding of pattern design through handling of fabrics on dress form. Costumes are designed, draped, and constructed. Miss Weibel

214. Family Economics. I, II. 3 hr. PR: Senior or graduate standing. Management of family's money resources. Consideration of the economic problems of families, of planned spending and saving, and of the role of the consumer. Open to non-majors. Mr. Taylor

215. Food Preservation. I. 2 hr. PR: Home Econ. 15. (1 1-hr. lec., 1 2-hr. lab.). Fundamental principles involved and actual experience in various methods of food preservation. Offered in 1963-64 and alternate years. Mrs. Jones

217. Readings in Textiles. I. 2 hr. PR: Home Econ. 17. Review and discussion of current literature reporting recent research in the field. Miss Dietrich

221. Community Nutrition Problems. I. 2 hr. PR: Consent. (2-hr. lec., field work). Includes consideration of organization and agencies through which these problems may be solved. Staff

222. Tailoring. II. 3 hr. PR: Home Econ. 2, 17. Tailoring of suits and coats. Emphasis placed on professional techniques, advanced fitting and construction of garments. Second garment constructed by fast-method techniques. Miss Weibel

233. Costume Design. I. 2 hr. PR: Home Econ. 2, 117. Techniques of figure and fashion drawing. Designing for individuals of various types and ages. Some history of costume included. Miss Weibel

234. Home Management Laboratory. I, II. 3 hr. PR: Home Econ. 15, 106, 114; Home Econ. 115 recommended. Arranged. A residence course designed to provide opportunity to apply management in a realistic homemaking situation, to develop satisfying relationships in a family-like atmosphere, and to use information and skills learned in other courses. Mrs. Armstrong

254. Household Equipment. II. 2 hr. Selection, arrangement, use and care of equipment of various situations and for different income levels. Laboratory and discussion. Mrs. Armstrong

264. Family Development. I, II. 2 hr. PR: Home Econ. 114 or consent. A professional course designed to prepare students for work with families in their varying stages of development and different socio-economic levels. Involves intensive study of family relationships as affected by differing stages of family life cycle from beginning family through the aging couple. Lecture, discussion, and observation of families. Open to non-majors. Mr. Taylor

266. Needs of Adolescents. I. 3 hr. A study of adolescent needs as met by the home with contributions of other agencies such as church, school, and youth groups. Physical, social and integrative needs will be considered from the standpoint of needs of all family members as well as the individual. Miss Brown

281. Problems in Nutrition and/or Diet Therapy. I, II. 1-4 hr. PR: Consent. Staff

282. Problems in Clothing I, II. 1-4 hr. PR: Consent. Staff

283. Problems in Related Art. I, II. 1-4 hr. PR: Consent. Staff

284. Problems in Home Management. I, II. 1-4 hr. PR: Consent. Staff

285. Problems in Foods. I, II. 1-4 hr. PR: Consent. Staff

286. Problems in Child Development. I, II. 1-4 hr. PR: Consent. Staff

287. Problems in Textiles. I, II. 1-4 hr. PR: Consent. Staff

LIBRARY SCIENCE

Professors Munn and Reese; Assistant Professors Lewis and Patterson.

Courses in undergraduate library science are designed to meet the needs of those students preparing to qualify for State certification as teacher-librarians in public schools, those who desire a general program of library science, and those who are interested in preparing for graduate study in librarianship. The student planning to serve as a school librarian must complete the minimum number of hours of Education courses required for certification. Students wishing to enter other fields of library science should plan their programs to include appropriate courses.

Certain courses, such as "Using Books and Libraries," will be valuable to any University student. "Library Materials for Children" and "Selection of Books and Related Materials for Young People" will be helpful to prospective teachers.

Qualities essential to school librarianship are adaptability, understanding, and appreciation of young people and their needs as well as a thorough knowledge of books, materials, and sources.

The Department of Library Science and the College of Education cooperate in offering graduate training in school librarianship. The degree of Master of Arts in Education is awarded to those successfully completing the program. For entrance requirements and courses of study consult the Graduate School *Announcements*.

Curriculum for A.B. Degree With Major in Library Science

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Laboratory Sci.	4	Laboratory Sci.	4
Lib. Sci. 1	3	Electives	2-5
Electives	2	Phys. Ed.	1
Phys. Ed.	1	Mil. or Air Sci. 2	3
Mil. or Air Sci. 1	2		
	18		15-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 3 or 5	3	English 4 or 6	3
Foreign language	3	Foreign language	3
Soc. Sci. 1	4	Soc. Sci. 2	4
Lib. Sci. 101	3	Electives	5
Electives	2	Phys. Ed.	1
Phys. Ed.	1	Mil. or Air Sci. 4	2
Mil. or Air Sci. 3	2		
	16-18		16-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Lib. Sci. 223	3	Lib. Sci. 224	3
Humanities 141 Great Books I	3	Humanities 142 Great Books II	3
Electives	12	Electives	15
	14-18		14-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Lib. Sci. 222	3	Lib. Sci. 227	3
Lib. Sci. 226	3	Electives	15
Lib. Sci. 225	3		
Electives	9		
	18		18

Students interested in public school librarianship should consult the College of Education *Announcements.*

Courses of Instruction

1. Using Books and Libraries. I, II. 3 hr. Planned to give working knowledge of library facilities, particularly of the University Library. General reference sources and basic principles of cataloging and book selection are studied. A course that is useful to any student in the University and required for majors in library science. Mr. Patterson

101. Reference and Bibliography. I. 3 hr. Basic reference books, dictionaries, encyclopedia, indexes, yearbook, and other reference materials are studied and evaluated, with practice in detailed bibliography making. Mr. Patterson

203. Library Materials for Children. I, S. 3 hr. A survey of the development of children's literature with emphasis on modern books. Evaluation of the aids and standards for selection of books and materials in this field. Investigation of children's reading interests and practice in storytelling are included. Discussions, reports and special projects. Miss Lewis

205. Selection of Books and Related Materials for Young People. II, S. 3 hr. A survey of adolescent literature and other library materials adapted to the needs of high school students. Critical evaluation of standard, classic and current books together with aid and criteria for selection. Reading interests and the problem of the retarded and nonreader will be considered. Staff

207. School Library Organization and Administration. I, S. 3 hr. A study of the organization and administration of school libraries including planning of rooms, equipment, routines and schedules. Attention is given to special phases of the work such as discipline, publicity and displays, reading, guidance, handling of audio-visual materials and the work of student assistants. Lectures, readings, discussions and special problems. Designed to meet the needs of the librarian and teacher-librarian. Miss Lewis

221. Public and Regional Library Service. S. 3 hr. PR: Consent. Principles governing the administration of tax-supported public libraries and the de-

velopment of larger units of service. Objectives, functions, control, finances, building and equipment, personnel, special services. Mr. Patterson

222. Field Practice. I, II, S. 3 hr. Designed to promote an understanding of total library programs and the interrelations of library methods and skills found in the different libraries. Offered after basic courses have been completed. Miss Reese

223. Cataloging and Classification. I, S. 3 hr. Basic principles of cataloging and classification combined with practical experience in processing the various types of books and materials. Problems peculiar to the teacher-librarian will be considered. Miss Reese

224. History of Books and Libraries. II, S. 3 hr. A survey course, including the development of the book from early manuscript form, history of printing, printers, book illustration, bindings, and the library and its development. Mr. Munn

225. Books and Reading for Adults. II, S. 3 hr. Reading and evaluation of representative books in broad subject fields. Stress on both modern titles and the classics for the adult reader. Emphasis on book reviewing, both written and oral, with a study of book selection aids. Class discussions, problems, term reports. Staff

226. Literature of the Social Sciences. II, S. 3 hr. PR: Consent. An approach to the selection and use of books and materials in the social sciences. Mr. Patterson

227. Literature of the Humanities. II, S. 3 hr. Bibliographical and other reference sources in the major subject areas of the humanities, including religion, philosophy, fine arts, music, and literature. Mr. Patterson

228. Literature of Science and Technology. II, S. 3 hr. PR: Consent. A course designed to give the student a good working knowledge of the increasingly complex literature of science and technology. Staff

230. Library Resources for the School Curriculum. I. 3 hr. Broadened experiences in both library and outside resources that lend themselves to curriculum enrichment, including guidance, remedial reading, text books, community resources, all phases of audio-visuals, etc. Presented to elementary and secondary teachers as well as librarians to help them give more effective service. Miss Lewis

235. Library in the Elementary School. II. 2 hr. PR: Lib. Sci. 203. Organization and administration of library service for children in the elementary school including consideration of housing equipment, selection and organization of books and other materials, instruction in the use of the library, student assistants, audio-visual materials, and publicity. Miss Lewis

Graduate Division

304. Advanced Cataloging and Classification. II, S. 3 hr. PR: Lib. Sci. 223. A more detailed study of classification including both Dewey and Library of Congress classifications as they pertain to books and nonbook materials found in college, university, special library collections, and large public libraries. Miss Reese

309. Seminar. I or II, S. (Max. credit, 4 hr.). Required of all majors in Library Science. A course covering special problems in the library field, varying according to the group and its needs. Staff

310. Special Topics. 1-3 hr. PR: Lib. Sci. 309. A thorough study of some phase of library science based on the needs and interest of the individual. Staff

311. Problem Report. (Ed. 360). 3 hr. PR: Ed. 301, Lib. Sci. 309. Staff

MATHEMATICS AND ASTRONOMY

Professors Stewart, Cunningham, Davis, Vehse, and Vest; Associate Professor Peters; Assistant Professors Cochran and Gould; Instructors Carlin, Coover, Davis, Dosier, Easton, Gilbert, Godfrey, Heflin, Hennen, Hogan, Loudin, McClung, Miller, Skocik, and Strong.

A student must have a grade-point average of 2.0 or higher in mathematics courses taken in the lower division before he will be admitted to the upper division as a mathematics major.

Lower-division students who plan to become majors in the Department, who also wish to meet the requirements for teacher certification, should so inform their lower-division adviser, and plan their schedules very carefully in order to avoid loss of time.

The foreign language should be French, German, or Russian.

Mathematics majors must complete 18 hours of mathematics beyond calculus. The usual courses are Math. 235, 240, 243, 246, 251, and 252. The minor may be physics, or some other subject approved by the adviser.

Suggested Mathematics Program

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Math. 3	3	Math. 15	4
Math. 4	3	Mil. or Air Sci. 2	2
Mil. or Air Sci. 1	2	Phys. Ed.	1
Phys. Ed.	1	Distribution requirements	3-6
Distribution requirements	3-6		
	16-18†		16-17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Math. 116	4	Math. 117	4
Physics 111	5	Physics 112	5
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed.	1	Phys. Ed.	1
Distribution requirements	3-6	Distribution requirements	3-6
	17-18		17-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 240	3	Math. 235	3
Math. 246	3	Math. 243	3
Distribution requirements	0-3	Distribution requirements	0-3
Minor and electives	9	Minor and electives	9
	18		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 251	3	Math. 252	3
Minor and electives	15	Minor and electives	15
	18		18

†Men required to take both military science or air science and physical education should postpone taking science until the second or third semester. A distribution requirement may then be taken in the Freshman year.

Courses of Instruction

MATHEMATICS

The following two courses are offered to enable students to remove entrance conditions in mathematics. Each course meets three times per week throughout the school year. Neither course carries University credit, although each is considered equivalent to three hours per semester in calculating student course loads.

Pre-College

0. Elementary Algebra. I and II. ½ unit per sem. A two-semester course equivalent to first-year high school algebra. Staff

1. Geometry. I and II. ½ unit per sem. A two-semester integrated course covering the usual material of high school plane and solid geometry. Staff

Lower Division

2. Algebra. I, II. 3 hr. PR: 1 unit of algebra. Staff

3. College Algebra. I, II. 3 hr. PR: 1½ units of algebra and successful completion of entrance examinations, or Math. 2, and 1 unit of geometry. Staff

4. Plane Trigonometry. I, II. 3 hr. PR: 1½ units of algebra and successful completion of entrance examinations, or Math. 2 and 1 unit of geometry. Staff

6. Arithmetic for Teachers. I, II. 3 hr. Staff

7. Solid Geometry. I, II. ½ unit. PR: Plane geometry. Staff

8. Elementary Mathematics. I, II. 3 hr. PR: 1 unit of algebra. For students planning to teach Commerce. Staff

14. Elementary Analysis. I, II. 2 hr. PR: At least 2 units of algebra, 1 unit of geometry, ½ unit of trigonometry, and successful completion of placement examination. Elements of algebra and trigonometry. Not open to students with credit for Math. 3 and/or Math. 4. Staff

15. Calculus I. I, II. 4 hr. PR: 2 units of algebra, ½ unit trigonometry, and successful completion of placement test, or Math. 3 and 4. Calculus with analytic geometry. Staff

21, 22. Introduction to Mathematics. I, II. 3 hr. per sem. PR: 1 unit of algebra. Reasoning, development of elementary mathematics, function and limit concepts, topics in modern mathematics, the nature of mathematics and its relation to modern civilization. Mr. Peters

Upper Division

110. Digital Computer Programing. I, II. 1 hr. PR: Math. 3. The preparation and execution of computer programs. Mr. Cochran

116. Calculus II. I, II. 4 hr. PR: Math. 15. A completion of plane analytic geometry, and the calculus pertaining to elementary functions. Staff

117. Calculus III. I, II. 4 hr. PR: Math. 116. Infinite Series, solid analytic geometry, calculus of two or more variables and short introduction to differential equations. Staff

220, 221. Numerical Analysis. I, II. 3 hr. per sem. PR: Math. 117 and pre- or corequisite Math. 110 or I.E. 180, or consent. The composition, propagation and generation of error. The discrete finite difference calculus. Polynomial approximation including interpolation, numerical differentiation and integration, numerical solution of differential equations, least squares, Chebyshev polynomials. Non-polynomial approximation. Numerical solution of equations and systems of equations. Eigenvalue problems, Random numbers, and Monte Carlo Methods. Mr. Cochran

225. Theory of Games. II. 3 hr. PR: Math. 117 or consent. Elements of Matrix Algebra and Probability. Theory of Games, including decision theory, linear and dynamic programing, and strategy. Mr. Cochran

232. Mathematical Statistics. II. 3 hr. PR: Math. 117. Discrete and continuous variables; correlation, regression, sampling theory, normal, chi-square, t, and F distributions; significance tests; analysis of variance. Mr. Cochran

235. Foundations of Algebra and Analysis. II. 3 hr. PR: Math. 117 or consent. Algebra of sets; propositional calculus; elementary topology, real number system; functions. Mr. Cunningham

238. Modern Geometry for Teachers. II. 3 hr. PR: Math. 117 or consent. For high school teachers. Foundations of geometry. Special topics from Euclidean projective, and non-Euclidean geometries. Mr. Cochran

240. Differential Equations. I, II. 3 hr. PR: Math. 117. First course. Types of ordinary differential equations of first or higher degree and of first or higher order. Solutions and applications. Not open to students with credit for Math. 253. Staff

242. Advanced Real Calculus. I. 3 hr. PR: Math. 117. This is a preparatory course for Math. 256. Fundamental principles of limits, derivatives, integrals and series. Mr. Vest

243. Projective Geometry. II. 3 hr. PR: Math. 246. Projective, affine, and metric geometries of the line, plane, and space; conics and quadrics. Mr. Davis

244. Theory of Equations. S. 3 hr. PR: Math. 117. Complex numbers, division, factorization and other properties of polynomials in a field. Theory of equations in the field of rational numbers; in the field of real numbers. Elimination, resultants, and symmetric functions. Algebraic extensions of a field. Algebraically closed fields. Ruler and compass construction. Mrs. Easton

245. Vector Analysis. I. 3 hr. PR: Math. 240 or 253. Vector definitions and operations, differentiation, operator del, integration, generalized coordinates, irrotational and solenoidal vectors, electrostatic fields, potentials. Staff

246. Introduction to Algebraic Theories. I, II. 3 hr. PR: Math. 108, 117 or consent. An introduction to the algebraic structure of groups, rings, fields, and vector spaces over a field; applications to the classical number systems, polynomials, and matrices; elementary transformations and equivalence of matrices; and determinants of square matrices. Mr. Peters

247. Theory of Numbers. S. 3 hr. PR: Math. 117. Divisibility, distribution of primes, theory of congruences, theory of quadratic residues, arithmetical properties of the roots of unity, Diophantine equations, and the prime number theorem. Mr. Gould

248. History of Mathematics. S. 3 hr. PR: Math. 15. Survey of the development of mathematics through the calculus, with emphasis on the mathematical theories and techniques of each period and their historical evolution. Mrs. Easton

251. Advanced Calculus. I. 3 hr. PR: Math. 117. Partial differentiation. Euler's theorem, Taylor's series, Jacobians; maxima and minima, Lagrange's multipliers; multiple integrals; line and surface integrals. Staff

252. Advanced Calculus. II. 3 hr. PR: Math. 251. Continuation of Math. 251. Limits and indeterminate forms; infinite series; improper integrals; applications of uniform convergence; Gamma and Beta functions; Stirling's formula; Fourier series. Staff

253. Advanced Course in Applied Mathematics. I. 3 hr. PR: Math. 117. Determinants and matrices; ordinary differential equations of the first order, linear differential equations with constant coefficients, simultaneous linear differential equations, applications; mechanical and electrical circuits; Fourier series and integrals. Mr. Vest

254. Advanced Course in Applied Mathematics. II. 3 hr. PR: Math. 253. Finite differences; partial differential equations, Bessel functions and Legendre polynomials; vector analysis. Mr. Vest

256. Introduction to Complex Variables. II. 3 hr. PR: Math. 242 or 252. An introductory course intended primarily for students in engineering and physics. Elementary principles, conformal mapping, and applications. Mr. Vest

259. Introduction to the Laplace Transform. II. 3 hr. PR: Math. 240 or 253. An introduction at the undergraduate level to the theory and applications of the Laplace transform. Mr. Vest

261, 262. Special Topics. S. 2-4 hr. PR: Math. 117 or consent. Primarily for teachers. Useful topics not covered in the regular required course. Content may vary with the needs of the student. Staff

263. Special Topics. II. 2-3 hr. PR: Math. 262 or consent. Sets; relations; axiomatization of a mathematical system; structure of Real Number System; algebraic expressions; and critical study of the foundations of Euclidean geometry. Mr. Peters

264, 265. Foundations of Algebra. S. 2 hr. PR: Differential and integral calculus. Not open to students with credit for Math. 246. Staff

266, 267. Foundations of Geometry. S. 2 hr. PR: Differential and integral calculus. Mr. Cunningham and Staff

268, 269. Probability and Statistics. S. 2 hr. PR: Differential and integral calculus. Staff

Graduate Division

308. Theory of Probability. I. 3 hr. PR: Math. 117. Fundamental theorems. Development of density and distribution functions in the discrete and continuous cases. Classical problems and solutions. Moments, characteristic functions, limit theorems. Applications. Mr. Stewart

309. Group Theory. II. 3 hr. PR: Math. 246 or consent. Order, index, coset, normal subgroup, factor group, homomorphism; direct product; fundamental theorem of Abelian groups; and Jordan-Holder theorem. Mr. Peters

311. Introductory Topology. II. 3 hr. PR: Math. 252. An axiomatic treatment of topological spaces. A study of transformations, convergence, metric spaces, continuous curves and Euclidean spaces. Mr. Hogan

312. Introduction to Combinatorial Topology. II. 3 hr. PR: Math. 252. Linear graphs, two-dimensional complexes and manifolds, n-dimensional complexes and manifolds, orientable manifolds. The fundamental group and certain unsolved problems. Staff

313. Advanced Differential Equations. II. 3 hr. PR: Math. 240, 252. Second-order linear equations, Riccati equations, complex variables. Series solutions. Equations of Fuchsian type, hypergeometric equation, confluence of singularities. Classical equations, applications. Mr. Vest

314. Tensor Analysis. II. 3 hr. PR: Math. 245, 252. Vector concept developed from standpoint of algebraic invariants, surface geometry, tensor operators, curvature tensor. Ricci and Bianchi identities, applications of tensors to physical phenomena. Mr. Stewart

315. Calculus of Variations. II. 3 hr. PR: Math. 240, 252. Maximum and minimum value of an integral, shortest distance, the brachistochrone problem, surfaces of revolution of minimum area, conditions for a relative minimum. Applications. Mr. Vest

320, 321. Special Functions. I, II. 3 hr. PR: Math. 240, 252. Operational techniques; generalized hypergeometric functions; classical polynomials of Bell, Hermite, Legendre, Noerlund, etc. Introduction to recent polynomials systems. Current research topics. Mr. Gould

331, 332. Theory of Partial Differential Equations. I, II. 6 hr. PR: Math. 240, 252, or equiv. Elementary concepts; Cauchy problems; the Cauchy-

Kowalewski theorem; general existence theorems; associate surfaces; classification into elliptic, parabolic, and hyperbolic types; conditions required of coefficients for solvability; techniques for solution; distribution theory; and numerical methods. Mr. Vest

351, 352. Algebraic Geometry. I, II. 3 hr. per sem. PR: Math. 243, 246. Characteristic properties and representations of curves and surfaces, algebraic correspondences; linear systems; enumerative geometry. Mr. Cunningham

353. Linear Algebra. II. 3 hr. PR: Math. 246 or consent. Review of theory of of groups and fields; linear vector spaces including the theory of duality; full linear group; bilinear and quadratic forms; and theory of isotropic and totally isotropic spaces. Mr. Peters

357. Fourier Series and Partial Differential Equations. I. 3 hr. PR: Math. 240 (or 253), 252. Introductory material, partial differential equations of physics, orthogonal sets; solving boundary value problems by Founder series and integrals, uniqueness of solutions; Bessel functions, Legendre polynomials. Mr. Vest

358. Operational Methods in Partial Differential Equations. II. 3 hr. PR: Math. 240 or (253), 252. Laplace transformation, properties and elementary applications; problems in partial differential equations, complex variable; problems in heat condition, mechanical vibrations, etc. Sturm Liouville systems. Fourier transforms. Mr. Vest

360, 361. Differential Geometry and Theory of Surfaces. I, II. 3 hr. per sem. PR: Math. 240, 243. Metric properties of space curves and surfaces by differential methods. Parametric representation, curvature, torsion, trihedrons, geodesics, transformations, conformability, developability, ruled surfaces. Mr. Davis

362, 363. Introduction to Modern Algebra. I, II. 3 hr. PR: Math. 246 or consent. Concepts from set theory and the equivalence of the Axiom of Choice, Zorn's Lemma, and the Well-ordering Theorem; a study of the structure of groups, rings, fields, and vector spaces; elementary factorization theory; extensions of rings and fields; modules and ideals; and lattices. Mr. Peters

364, 365. Theory of Functions of Complex Variables. I, II. 3 hr. per sem. PR: Math. 240, 252. Complex numbers; functions of a complex variable; fundamental theorems of Cauchy; conformal representation with applications; analytic continuation; calculus of residues; Gamma, Bessel, and elliptic functions. Mr. Vehse

366, 367. Higher Plane Curves. I, II. 3 hr. per sem. PR: Math. 241, 243. Algebraic plane curves. General theory of curves, singularities, relationships, associated curves; detailed study of curves of third and fourth order. Staff

372, 373. Line Complexes and Cremona Transformations. I, II. 3 hr. per sem. PR: Math. 243. Line coordinates, null system, systems of complexes, congruences, surface theory, and mapping. Plane Cremona transformations, introduction to general space theory, opportunities for research. Mr. Davis

374, 375. Algebraic Surfaces. I, II. 3 hr. per sem. PR: Math. 243. Mapping of quadric, cubic, quartic, and quintic surfaces on the plane; space transformations, equivalence, postulation; curves on a surface, adjoint systems, invariants. Mr. Davis

376, 377. Theory of Functions of a Real Variable. I, II. 3 hr. per sem. PR: Math. 235, 246, and 252. Review of elementary point set concepts. Necessary and sufficient conditions under which operations of previous analytical subjects are valid. Different theories of integration. Mr. Cunningham

380. Thesis. I, II. 3 hr. Staff

ASTRONOMY

Upper Division

106. Descriptive Astronomy. II. 3 hr. Mr. Cochran

216. Astronomy for Teachers. S. 3 hr. Introduction to astronomy with special emphasis on the needs of physical science teachers and science club directors. Not open to students with credit for Math. 106. Mr. Cochran

255. Mathematical Astronomy. II. 3 hr. PR: Astronomy 106, Math. 240. Development of the implications of Kepler's Laws and Newton's Law of Gravitation. Mr. Cochran

NURSING EDUCATION

Assistant Professor Sandy.

This program has not been available to students since June 1, 1961. A program leading to a B.S. degree in Nursing is offered in the School of Nursing. Information regarding this program may be obtained by writing to: Dean, School of Nursing, West Virginia University, Morgantown, W. Va.

A student who enrolled in the Nursing Education program of the College of Arts and Sciences prior to June 1, 1961 must complete all requirements for the degree by June, 1968.

Nursing Education has as its main objectives the preparation of students to meet the challenge presented in the varied, important, and increasing activities in the expanding field of health; the development in students with a wide interest in social and professional problems, with an ability to share in their solution for increased and enriched professional usefulness; and the preparation of students for democratic leadership and creative living in professional nursing and in the civil and social activities of their communities.

Bachelor of Science in Nursing Education

Admission Requirements: Applicants for admission to the Department of Nursing Education must. (1) meet requirements for admission to the College of Arts and Sciences; (2) be graduated from a state-accredited school of nursing; (3) be registered in one state or hold a temporary permit pending registration; (4) have experience in institutional, public health, or private-duty nursing; and (5) may be a senior student in a School of Nursing, selected by the School of Nursing and approved by the Department of Nursing Education and the College of Arts and Sciences.

Advanced Standing: Graduates of accredited schools of nursing may matriculate for this degree with advanced standing. Advanced standing may be granted for the following: (1) Basic nursing program in an accredited school of nursing. Each student's record will be evaluated individually and advanced standing given according to the content and quality of classroom and clinical instruction. An official transcript of the school of nursing record must be sent to the Registrar. Students who desire to matriculate with advanced standing should request a School of Nursing transcript form when they apply for admission. Thirty semester hours represent the maximum advanced standing allowed for a satisfactory basic diploma program in a hospital school of nursing. (2) Military credit—basic, four (Phys. Ed.) and advanced, six nonduplicate semester hours may be allowed for military service in World War II and Korea upon presentation of separation papers to the Registrar. (3) Credit for required courses completed with C or above grade in other accredited colleges or universities may be accepted for credit. Official transcript of records of work must be sent to the University Registrar by other colleges, universities, or schools of nursing.

Program Requirements: Candidates for the degree of Bachelor of Science in Nursing Education are required to satisfactorily complete at least 128 credit hours of which 124 hours must be established in subjects exclusive of credits earned in required Physical Education, required Military or Air Science, and English 0. The

Nursing Education major includes at least 24 semester hours of professional or allied professional courses, 54 semester hours of general academic, scientific, and social subjects; a total of 58 semester hours of lower-division courses, including advanced standing credits in the basic nursing program; a total of 58 semester hours of upper-division courses, including the 24 hours required for the major, the 9 hours required for the minor, and the electives necessary to total 128 semester hours required for a Bachelor of Science Degree. With departmental approval, certain courses in education, sociology, social work, or psychology may be counted toward the major.

REQUIRED COURSES

1. *General Courses Required*:

English Composition 1 and 2	6 hr.
English (any upper-division courses)	6 hr.
Foreign Language (any one foreign language)*	12 hr.
Science (any one Physical or Biological laboratory science)	8 hr.
Sociology 102 or 1 (and any other upper-division course)	6 hr.
Psychology 1 or 3 (and any other upper-division course)	6 hr.
History (or Humanities 1 and 2—8 hr.)	6 hr.
Physical Education	4 hr.

2. *Professional Courses Required*:

101—Introduction to Nursing Education—or 102—Principles and Methods of Teaching Nursing	3 hr.
103—Trends in Nursing	3 hr.
104—Ward Administration and Teaching	3 hr.
107—Guidance in Nursing—or 117—Interpersonal Relations Applied to Nursing	3 hr.
108—The Nurse and Community Relationships	3 hr.
113—Legislation and Jurisprudence Affecting Nursing	3 hr.
Electives in Nursing Education or closely allied subjects	6 hr.
	24 hr.

3. *Major in Nursing Education*:

The non-specialized program leading to the degree of Bachelor of Science in Nursing Education was established to provide an opportunity for more thorough preparation of qualified graduate nurses to administer and supervise nursing services in a hospital unit. Such a program is fundamental to the understanding of administration, teaching and supervision, and serves as a basis for future graduate study, including clinical specialties. The major program offered at present is "Administration and Teaching in a Hospital Unit."

*Or two units of entrance and six hours in the same language at the sophomore level.

Pre-Nursing Curriculum

Students interested in professional nursing as a career and who plan to enter a collegiate school of nursing may take one, two, or more years of general college work as given on page 152.

Courses of Instruction

Upper Division

101. Introduction to Nursing Education. I, II. 3 hr. PR: Psychology and consent. An orientation course designed as an introduction to the philosophy, basic principles, methods and organization underlying all fields of nursing, with emphasis upon teaching, supervision, and administration in schools of nursing. Staff

102. Principles and Methods of Teaching Nursing. II. 3 hr. PR: Nurs. Educ. 104, consent. A study of basic principles and methods of teaching from the standpoint of nursing education, with emphasis on teaching of nursing, planning, construction, and evaluation of units of work and instruction. Staff

103. Trends in Nursing. I, II. 3 hr. PR: Consent. A prologue to the future in the study of rapid professional and social changes, of recent developments, of new perspectives, and of current problems in the struggle to achieve professional maturity in all fields of nursing, and of allied professions in their relation to the nurse, to professional organizations, and progress. Staff

104. Ward Administration and Teaching. I, II, S. 3 hr. PR: Consent. A study of the basic principles underlying good ward administration; effective supervision; efficient bedside and ward teaching; and the total patient care in the maintenance of high-quality nursing service. Evaluation of staff and student's competencies as applied to good nursing care. Discussion of the head nurse's responsibility for personal growth and development, and for civic and social obligations as a professional citizen and nurse in the community. Staff

106. Historical Foundations of Nursing. II. 3 hr. A historical study and review of the origin, aims, and growth of nursing. Special emphasis on source material and its value as a basis for growth and development in the professional, educational, national, and international aspects of nursing and other healing arts. Staff

107. Guidance in Nursing. I, II. 3 hr. A study of guidance principles and procedures applied to the needs and problems confronting students and graduate nurses in hospitals, other health agencies, and schools of nursing. Staff

108. The Nurse and Community Relations. I, II. 3 hr. Designed to meet the challenge of today. To increase professional and social usefulness by playing well the nurse's role on the health team wherever it may function, in homes, in institutions, agencies, or in the community. Staff

110. Evaluation in Nursing Education. II. 3 hr. PR: Nurs. Educ. 101 or 102, psychology, and consent. Basic concepts and philosophy of the evaluation of learning, and the central aim of education in a democratic society. Analysis and interpretation of techniques and tools of evaluation with emphasis on methods of teaching appropriate to the achievements of desired objectives, and the evaluation of teaching. Staff

111. Personnel Policies and Practices. I. 3 hr. PR: Consent. A critical study of the evaluation, formulation, and implementation of personnel policies and practices as related to democratic administration, economic security, and quality nursing care. Staff

112. Nursing Procedures and Routines. II. 3 hr. PR: Consent. A critical study of nursing procedures and routines already established to find ways to advance, to reinforce, and to keep abreast of new procedures. Emphasis on effective means of evaluation, construction, and administration of nursing procedures and routines. Staff

113. Legislation and Jurisprudence Affecting Nursing. I, II. 3 hr. A survey of current legislation affecting nursing, including the State Board of Nurse Examiners and other state and federal legislation relating to nursing and nursing education. A critical study of jurisprudence and its legal implications for the nurse as a member of the nursing profession and as a citizen. Staff

114. New Developments in Nursing Care. I, II, S. 1-3 hr. PR: Consent. Designed around the general theme of improving basic nursing care in such areas as teaching, techniques, curriculum planning, social and health integration, and counseling and guidance techniques effective in nursing. Staff

115. Problems in Nursing. S. 1-3 hr. PR: Consent. This course is planned to meet needs and interests of nurses active in public health, industrial, and institutional nursing. Staff

117. Interpersonal Relations Applied to Nursing. I, II, S. 3 hr. PR: Consent. Designed to provide a better understanding of the dynamics of human behavior and basic principles underlying personality development in order to better understand self and others and gain increased skill in interpersonal relationships with patients, co-workers, and people in general. Staff

200. In-Service Education in Nursing. I, II, S. 3 hr. PR: Consent. A study of the philosophy and nature of various in-service programs, and ways and means of promoting continued professional development. Staff

216. Special Topics. 1-3 hr. PR: 10 hr. in Nurs. Educ., consent. Designed to provide material for work conferences or formal class in topics such as: interpersonal and public relations; supervision and teaching in nursing for hospital, public health, and industrial groups; rehabilitation; long-term chronic illness; communication competency; and other topics to meet current and critical needs of professional nurses, their patients, and community. Staff

PHILOSOPHY AND PSYCHOLOGY

Professors Curtis and Cresswell; Associate Professors Carruth, Cross, Dana, Decker, Minor, Rankin, Shafer, and Thomas; Assistant Professors Ferguson, Ourth, and Quarrick; Instructors Cole, Grumpelt, and Voigt.

PHILOSOPHY

Philosophy has two main functions: (1) critical analysis of basic concepts, ideas, ideals, and beliefs; (2) organization of knowledge, and the development of patterns of tested belief for guidance of individual and institutional conduct.

Courses in philosophy are especially useful: (1) as a valuable background for policy-making positions in government, business, schools, and church; (2) as a preparation for work in the field of religion; (3) as an indispensable foundation for graduate training leading to teaching and research in philosophy; (4) as a general education providing conditions for the organization of knowledge and a clearer recognition of values.

Program for Philosophy Majors

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Philos. 4	3	Art, Lib. Sci., or Speech	3	Humanities 1	4	Philos. 108 or 113	3
English 1	3	English 2	3	Philos. 106 or 107	3	Humanities 2	4
Foreign language	3	Foreign language	3	Foreign language	3	Foreign language	3
Laboratory Sci.	4	Laboratory Sci.	4	Econ., Pol. Sci.		Econ., Pol. Sci. or Soc. Sci.	3-4
Phys. Ed.	1	Phys. Ed.	1	Econ., Pol. Sci. or Soc. Sci.	3-4	Literature or Math.	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2	Literature or Math.	3	Mil. or Air Sci. 4	2
				Mil. or Air Sci. 3	2	Phys. Ed. (W)	1
				Phys. Ed. (W)	1		
	16		16		17-19		17-19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Psych. 1	3	Minor Subject	3
Philosophy Elective	3	Philosophy Electives	6
Minor Subject	3	Upper-Division Electives*	6-9
Upper-Division Electives*	6-9		
	15-18		15-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Philosophy Electives	6	Philosophy Electives	6
Minor Subject	3	Minor Subject	3
Upper-Division Electives*	6-9	Upper-Division Electives*	6-9
	15-18		15-18

At least 6 hr. of work are to be chosen from each of the groups below:
a) Philos. 106, 112, 113, 205, 208, 210.
b) Philos. 107, 108, 114, 115, 118, 221.

*The following courses are highly recommended as cognate electives. A maximum of six hours from this list may be counted toward the major, with the adviser's consent, provided that at least 18 hours of philosophy courses are taken within the department: Econ. 210, 222; English 225; Hist. 276, 290, 291; Pol. Sci. 170, 171, 272, 273, 274.

PSYCHOLOGY

Courses in psychology are designed for one or more of the following ends: to promote a better understanding of human nature and behavior; to lay a foundation for graduate professional training; and to inculcate useful skills of psychological technology.

Program for Psychology Majors

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Psych. 3	4	Psych. 4	4
Humanities 1	4	Humanities 2	4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	15-17		15-17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Biol. 1 or Zool. 1	4	Biol. 2 or Zool. 2	4
Psych. 103	3	Psych. 104	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Electives Group 2	3-4	Electives, Group 2	3-4
Literature or Math.	3	Literature or Math.	3
	17-19		17-19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Psychology Electives	6	Psychology 130	3
Speech 11	3	Psychology Elective	3
Minor Subject	3	Minor Subject	3
Upper-Division Electives	3-6	Philos. 4 or 104	3
		Zool. 171	4
	15-18		16

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Psychology Electives	6	Psychology Electives	6
Minor Subject	3	Minor Subject	3
Upper-Division Electives	6-9	Upper-Division Electives	6-9
	15-18		15-18

Courses of Instruction

PHILOSOPHY

Lower Division

4. Introduction to Philosophy. I, II. 3 hr. Study of living issues in the field of philosophy: (1) philosophic development of scientific methods for gaining knowledge; (2) fundamental moral, aesthetic, and religious values for guidance in wise use of knowledge. Mr. Minor

Upper Division

104. Principles of Philosophy. I, II. 3 hr. An inquiry into the meaning and reliability of some of our fundamental beliefs. A first course in philosophy, primarily for juniors and seniors. (Not for those who have credit for Philos. 4.) Mr. Cresswell

106. Logic. I. 3 hr. PR: Philos. 4 or 104. An examination of formal reasoning and scientific methods as means for attaining reliable knowledge. Mr. Cresswell

107. Personal Ethics. I. 3 hr. PR: Philos. 4 or 104. A search for the meaning and nature of right and wrong, the good and the bad in human conduct: (1) nihilism, the denial of ethics; (2) traditional theories of ethics; (3) recent research. Mr. Minor

108. Social Ethics. II. 3 hr. PR: Philos. 4 or 104. Critical analysis of conflicting social policies operating in family, educational, religious, economic, and political institutions in the interest of developing consistent principles for guidance of all institutions. Mr. Minor

112. History of Ancient and Medieval Philosophy. I. 3 hr. PR: Philos. 4 or 104. The history of philosophy brings together in connected form the ideals prized by the several periods in Western civilization which give meaning to the religious, political, social and literary achievements of each period. The first semester course ends with the 6th century. Mr. Cresswell

113. History of Modern Philosophy. II. 3 hr. PR: Philos. 4 or 104. Continuation of Philosophy 112, through the 19th century. Mr. Cresswell

114. Contemporary Philosophy. I. 3 hr. PR: Philos. 4 or 104. Critical study of existentialism and operationalism as systems for the guidance of man. Offered in 1964-65 and alternate years. Mr. Minor

115. Contemporary Philosophy. II. 3 hr. PR: Philos. 4 or 104. Critical study of dialetical materialism and democracy as systems for the guidance of man. Offered in 1964-65 and alternate years. Mr. Minor

118. Philosophy of Art. I. 3 hr. PR: Philos. 4 or 104. Study of aesthetics which examines the meaning and nature of art and beauty. Critical analysis of principles to guide the development of aesthetic perception, form, expression, and use of fine, industrial, and professional arts. Offered in 1963-64 and alternate years. Mr. Minor

205. Oriental Religions and Philosophies. I. 3 hr. PR: Two courses in philosophy, or consent. An account of the religions of India, China, and Islam with their supporting philosophies; and the influence of the major Oriental world views on the Western world. Mr. Cresswell

208. Philosophy of Religion. I or II. 3 hr. PR: Two courses in philosophy. An attempt to discover the logically defensible foundations of religion. Mr. Cresswell

210. Philosophy of Science. II. 3 hr. PR: Philos. 4 or 104. An examination of the methods, presuppositions and concepts of modern science. For students interested in the influences of science on contemporary thought and society. Mr. Cresswell

217. Metaphysics. I or II. 3 hr. PR: Philos. 4 or 104, 112 or 113. Study of a selected system of philosophy. Staff

221. Axiology. II. 3 hr. PR: Philos. 4 or 104 and 107 or consent. Study of the origin, nature, and growth of value as the basis of intelligent development of normative disciplines including the applied sciences, law, art, religion. Offered in 1963-64 and alternate years. Mr. Minor

PSYCHOLOGY

Lower Division

1. Introduction to Psychology. I, II. 3 hr. Principles of general psychology for non-majors. (Not for those who have credit for Psych. 3 and 4). Staff

3, 4. General Psychology. I, II. 4 hr. Open to freshmen. 3 hr. lect., 2 hr. lab. a week. Fundamentals of general psychology for majors or those using psychology to satisfy science requirement. Staff

20. Psychology of Personal Efficiency. I, II. 1 hr. For students whose scholastic achievement is below capacity. Diagnostic and remedial practice in areas which hamper personal or academic efficiency. For freshmen and sophomores; others by consent. Staff

Upper Division

103, 104. Experimental Psychology. I, II. 3 hr. per sem. PR: Psych. 3 and 4 or consent. Required of majors. Principles of general experimental psychology surveyed at the intermediate level. Staff

110. Applied Psychology. II. 3 hr. PR: Psych. 1 or 3 and 4. Applications of psychology in fields of law, medicine, education, and business. Mr. Decker

115. Psychology in Industry. II. 3 hr. PR: Psych. 1, or 3 and 4. Job training, leadership training, motivation and morale, human relations, safety, industry and society. Mr. Curtis and Mr. Decker

116. Social Psychology. I. 3 hr. PR: Psych. 1, or 3 and 4. A study of the social factors which determine human behavior. The relationship of class, race, culture, social structure and other group phenomena to individual behavior. Other topics include: attitudes, public opinion, propaganda, mass media of information and national character. Mr. Rankin

122. Developmental Psychology. I. 3 hr. PR: Psych. 1, or 3 and 4. Growth trends in child behavior, including development in the physical, intellectual, emotional, social, and personality areas. Mr. Carruth

125. Mental Hygiene. I or II. 3 hr. Man's personality and needs and emotions as they relate to effective living in a modern world. Emphasis on those factors which lead to healthy psychological adjustment. Staff

130. Statistical Methods in Psychology. I. 3 hr. PR: Psych. 1 or 3 and 4. Analysis and interpretation of psychological data. Mr. Thomas

201. Physiological Psychology. I or II. 3 hr. PR: Psych. 103, 104 and Zool. 171 or equiv. The organic basis for psychological activities such as perception, emotion, motivation, and learning. Mr. Shafer

205. Individual Differences. II. 2 hr. PR: One course in psychology. Nature and extent of the differences among individuals in psychological traits such as intelligence and personality, as influenced by heredity, schooling, age, sex, and culture. Primarily for students in psychology and education. Mr. Cross

206. Learning and Motivation. I or II. 3 hr. PR: Psych. 103, 104 or equiv. Survey of experimental data in the area of learning and motivation. Special emphasis on contemporary learning theory. Mr. Shafer

214. Job Analysis. I or II. 3 hr. PR: Psych. 244 or M.E. 140. Instruction and supervised practice in preparation and use of job analyses. For students of psychology, engineering, management, or rehabilitation counseling. Mr. Cross

216. Attitudes and Propaganda. II. 3 hr. PR: Psych. 1 or 3 and 4, or consent. Includes: the nature of attitudes and opinions, attitude measurement, opinion changing, propaganda use and analysis, the social psychology of mass media, democratic values and public opinion. Designed to meet the needs of students from a variety of fields as well as psychology—especially sociology, political science, and journalism. Mr. Rankin

218. Psychology of Personality. I or II. 3 hr. PR: Two courses in psychology, or consent. Critical consideration of major theories of personality, including Freudian, neo-Freudian, learning theory, and trait theory. The basis and logic of personality theorizing will be stressed. Mr. Rankin

225. Group Psychometric Testing. I. 3 hr. PR: Psych. 1, or 3 and 4, and 130. Theory underlying the construction of group tests of intelligence, aptitudes, interests, personality, and attitudes. Practice in administering, scoring, and interpreting them. Mr. Cross

226. Advanced Experimental Psychology. II. 3 hr. PR: Psych. 103, 104, 130. Lectures and laboratory. Design of psychological experiments; psychophysics of audition and vision. Mr. Shafer

229. Abnormal Psychology. II. 3 hr. PR: Psych. 1, or 3 and 4. A consideration of the major behavior disorders and the various psychological, surgical, chemical, and medical treatments thereof. Mr. Ferguson

233. Problem Children. II. 3 hr. PR: Child or educational psychology. Study of children who present psychological problems because of: (1) exceptional mental retardation or advancement; (2) organic disabilities having behavior consequences, such as cerebral palsy or deafness; (3) disorders of conduct associated with atypical personality functioning. Of special interest to those who regularly deal with children as teachers, nurses, etc. Mr. Quarrick

236. Psychology of Adjustment. I. 3 hr. PR: Psych. 1, or 3 and 4, or consent. Dynamic principles of human personality adjustment. Mr. Ourth

238. Introduction to Clinical Psychology. I or II. 3 hr. PR: Psych. 218, 236, or consent. The contribution of clinical psychology to understanding people. Foundation for advanced courses in clinical methods and skills. Of interest to advanced undergraduates and graduates in education, guidance, personnel, and social work as well as professionally-oriented students in psychology. Mr. Dana

240. History of Psychology. II. 3 hr. PR: Psych. 1, or 3 and 4. Traces the development of the science and concepts of psychology from their origin in philosophy, physiology, and medicine up to the modern era. Mr. Curtis

242. Advanced Social Psychology. I. 3 hr. PR: Psych. 116 or consent. A consideration of contemporary theory and practice in social psychology. Mr. Rankin

244. Personnel Psychology. I, II. 3 hr. PR: Psych. 1, or 3 and 4, and a course in business, psychological, or engineering statistics. Application of psychological principles and techniques for selecting personnel, evaluating performance, analyzing jobs and workers. Mr. Decker

245, 246. Seminar. I, II. 1 or 2 hr. Critical study of selected topics. Staff

260. Statistical Methods in Psychology. II. 3 hr. PR: Psych. 130 or equiv. Sampling theory, probability, further parametric and non-parametric statistics. Mr. Thomas

270. Group Dynamics. (Same as Sociol. 270). I or II. 3 hr. PR: Introductory course in psychology or sociology, or permission. An interdepartmental course, combining psychological and sociological approaches, in which the dynamics of groups in operation are considered. The following subjects will be treated: leadership, informal communication and group pressures, the relation of group aims to group organization, and the effect of the group on personality. Attention is given to recent researches and to practical applications. Staff

Graduate Division

301, 302. Social Problems in Research. I, II. 1-3 hr. per sem. Staff

303, 304. Thesis. I, II. 2-3 hr. per sem. Staff

305, 306. Directed Study. I, II. 1-3 hr. Directed reading and research in special areas. Staff

310. Projective Techniques. I or II. 3 hr. PR: Psych. 236, 324, and consent. Survey of the projective techniques used in psychodiagnostics, including the Thematic Appreciation Test and the Rorschach Test. Special emphasis will be given the Rorschach Test. Mr. Dana

311. Practicum in Projective Techniques. I or II. 1-3 hr. PR: Psych. 310 or equiv. Supervised practice in scoring and interpretation of the Rorschach Test and Thematic Apperception Test. Mr. Dana

314. Practicum in Industrial Interviewing. I. 3 hr. PR: Psych. 244 or 115. Includes a survey of literature concerned with industrial interviewing, a review of personal history data found to be significant in industrial selection, and intensive study of interview techniques, practice and recorded interviews, by the student with critiques by the instructor. Mr. Decker

316. Counseling and Psychotherapy. I or II. 3 hr. PR: Psych. 218, 229, or equiv. Individual and group psychotherapy. Mr. Ferguson

317. Practicum in Counseling and Psychotherapy. I or II. 1-3 hr. PR: Psych. 316 or equiv. Supervised experience in psychotherapeutic techniques used by the psychologist in a clinic setting. Mr. Ferguson

324. Individual Intelligence Testing. II. 4 hr. PR: Psych. 122 and 225, or Educ. 375, or consent. Theory and practice in Binet, Wechsler, and other individual tests of cognitive functioning. Mr. Ferguson

329. Behavior Pathology. II. 3 hr. PR: Psych. 218, 229, or consent. Advanced study of theories and evaluation of accumulated evidence concerning the etiology and dynamics of severe behavior pathology. Recommended prior to or concurrent with Psych. 310. Mr. Carruth

330. Systems of Psychology. II. 3 hr. PR: Psych. 1, 3 and 4, and one course in philosophy. Staff

331. Theory Construction. II. 3 hr. Problems and techniques of organizing the data of psychology; philosophical background, problems of definition, logical structures and techniques employed. Staff

338, 339. Clinical Psychology. I, II. 1-3 hr. PR: Psych. 324 and consent. Supervised practice in use of psychological techniques in a clinic setting. Mental testing, interviewing parents, personality diagnosis, test interpretation and reports, play techniques with children, case presentations at staff meetings. Emphasis is on the multi-discipline approach at the University Counseling Center. Mr. Carruth

345, 346, 347, 348. Seminar. I, II. 1 or 2 hr. Critical study of selected topics. Staff

350, 351. Practicum in Student-Personnel Psychology. I, II. 1-3 hr. PR: Psych. 236 or consent. Diagnostic and remedial techniques for dealing with reading and work-study-skills efficiency, and personal-social-emotional adjustment. Mr. Cross

352. Practicum in Vocational Appraisal. I, II. 1-3 hr. PR: Consent. Principles and procedures in appraising educational and vocational fitness. Supervised practice in testing and counseling college students presenting educational and vocational problems. Mr. Cross

360. Analysis of Variance. I. 3 hr. PR: Psych. 130, 260, or consent. A discussion of tests of homogeneity of variance, parametric and non-parametric analysis of variance, and analysis of covariance. Implications of these techniques for experimental design will be considered. Mr. Thomas

361. Correlation Analysis. II. 2 hr. PR: Psych. 130. A study of the correlational techniques used in research and development in psychology with practice in the application of the methods to typical problems. The methods studied will include product-moment, biserial, tetrachoric, partial, multiple, and others. Mr. Decker

PHYSICS

Professors Thomas and Rexroad; Associate Professors Jefimenko, Pavlovic, and Williamson; Assistant Professors Levine and Vehse; Instructors Farr and Wilson; Instructor (part-time) Errington.

Various courses offered in Physics are designed to meet the needs of students in the Colleges of Education, Engineering, Arts and Sciences, Agriculture, and the School of Pharmacy.

Suggested Curriculum for A.B. Degree in Physics

The Bachelor of Arts degree is intended for those students who wish a foundation in physics but with a wider choice of elective subjects than is possible for those wishing to enter the field at a professional level. A total of 124 hours exclusive of Military or Air Science, Physical Education, and English 0 are required. At least two of the following are required: Physics 225-226, 231-232, 233-234, and at least two of the accompanying laboratories.

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2	Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed. 1	1	Phys. Ed. 2	1	Physics 111	5	Physics 112	5
English 1	3	English 2	3	Math. 116	4	Math. 117	4
Math. 3	3	Math. 15	4	Chem. 1	4	Chem. 2	4
Elective	3	Elective	3	Language 3	3	Language 4	3
Elective	3	Language 2	3				
†Language 1	3						
	18		16		18		18

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second. Sem.*	*Hr.*
Math. 200	3	Elective	3	Physics 200	3	Physics 200	3
Physics 100	3	Physics 100	3	Physics 200 Lab.	1	Physics 200 Lab.	1
Physics 200	3	Physics 200	3	Elective	3	Elective	3
Phys. 200 Lab.	1	Phys. 200 Lab.	1	Elective	3	Elective	3
Elective	3	Elective	3	Elective	3	Elective	3
Elective	3	Elective	3	Elective	3	Elective	3
	16		16		16		16

†If Math. 4 (Trigonometry) is required, postpone language one semester German, Russian, and French are recommended.

Suggested Curriculum for B.S. Degree in Physics

The Bachelor of Science degree is designed for those students who expect to prepare for graduate work or to enter physics as a profession upon completion of the bachelor's degree. A minimum of 139 credit hours is required for graduation.

The first two years of the curriculum for the B.S. degree are the same as for the A.B. degree listed on page 220.

The following are required: Physics 225-226, 231-232, 233-234 and two of the accompanying laboratories. At least 6 hours of a second language (German, Russian or French) are required, 9-12 hours are recommended.

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Math. 200	3	Math. 200	3	Physics 200	3	Physics 200	3
Physics 100	3	Physics 100	3	Physics 200	3	Physics 200	3
Physics 200	3	Physics 200	3	Elective	3	Elective	3
Physics 200	3	Physics 200	3	Elective	3	Elective	3
Phys. 200 Lab.	1	Phys. 200 Lab.	1	Elective	3	Elective	3
Phys. 200 Lab.	1	Phys. 200 Lab.	1	Language 3 or		Language 4 or	
2nd Language 1	3	Language 2	3	Elective	3	Elective	3
	17		17		18		18

Courses of Instruction

Lower Division

1. Introductory Physics. I. 4 hr. PR: Plane geometry and algebra. Required of all students whose curriculum calls for introductory physics. Mechanics, sound, heat. Staff

2. Introductory Physics. II. 4 hr. PR: Physics 1. Electricity, magnetism, and light. Staff

11. General Physics. I, II. 4 hr. Pre- or corequisite: Calculus. Required of all students who major in mathematics. Not open to students who have credit for Introductory Physics. Mechanics, sound, and heat. Staff

Upper Division

109, 110. A Problem Course in General Physics. I, II. 2 hr. per sem. Pre- or corequisite: Calculus. Open to students who have taken Introductory Physics or equivalent; not open to students who have taken General Physics. Mr. Wilson

111. General Physics. I, II. 5 hr. Pre- or corequisite: Calculus. Required of all students who major in mathematics. Not open to students who have credit for Introductory Physics. Mechanics, sound, and heat. Staff

112. General Physics. I, II. 5 hr. Continuation of Physics 111. Not open to students who have credit for Introductory Physics. Light, electricity, and magnetism. Staff

113, 114. Introductory Electronics. I, II. 3 hr. per sem. PR: 1 year of college physics. Mr. Errington

116. Photography. II. 3 hr. PR: 1 year of college physics, 1 year of college chemistry. The physics and chemistry of photography with practical application. Mr. Farr

117. Descriptive Meteorology. I. 3 hr. PR: 1 year of college physics. Description of the atmosphere and its weather. Reading and analysis of weather maps. Weather observations. Mr. Williamson

118. Physical Meteorology. II. 3 hr. PR: Physics 117 or equiv. The physics of the atmosphere. Analysis of surface and upper air charts. Forecasting. Mr. Williamson

201, 202. Special Topics. I, II. 1-3 hr. per sem. Staff

213. Introductory Electronics. S. 3 hr. PR: 1 year of college physics. Primarily for Education majors, not for graduate credit for science majors. Mr. Errington

221. Optics. II. 3 hr. PR: 10 hr. of college physics, calculus. Work with optical instruments, spectrometry, interferometry, and polarization. Mr. Vehse

225, 226. Introduction to Modern Physics. I, II. 3 hr. per sem. PR: 10 hr. of college physics, calculus. Particle analysis, phenomena connected with the structure of the atom. Staff

231, 232. Theoretical Mechanics. I, II. 3 hr. per sem. PR: 10 hr. college physics, calculus. Theorems and problems in intermediate mechanics. Mr. Williamson

233, 234. Introductory Electricity and Magnetism. I, II. 3 hr. per sem. PR: 10 hr. physics, calculus. Electrostatic, magnetostatics, network analysis, introduction of electrodynamics, and applications. Mr. Jefimenko

241, 242. Physics Laboratory. I, II. 1 hr. To accompany Physics 231, 232. Staff

243, 244. Physics Laboratory. I, II. 1 hr. To accompany Physics 233, 234. Mr. Jefimenko

245, 246. Physics Laboratory. I, II. 1 hr. To accompany Physics 225, 226. Staff

247, 248. Physics Seminar. I, II. No credit. Required of junior, senior and graduate physics majors. Staff

254. Outline of Modern Physics. S. 3 hr. PR: 10 hr. college physics, 1 year college math. Selected topics in modern physics. Primarily for Education majors, not open to physics majors. Staff

255, 256. Workshop for Physics Teachers. SI, SII. 2 hr. PR: 1 year college physics, 1 year college mathematics. Techniques of apparatus construction and demonstration. Primarily for Education majors, not open to physics majors. Mr. Williamson

257. Photography. SI. 3 hr. PR: 1 year physics or equiv. Primarily for Education majors, not open to physics majors. Mr. Farr

258. Light. SII. 3 hr. PR: 1 year physics or equiv. Primarily for Education majors, not open to physics majors. Staff

261, 262. Molecular Physics. I, II. 3 hr. per sem. PR: Physics 225, 226. Molecular spectra, molecular structure and solid state physics. Mr. Rexroad

271, 272. Solid State Physics. I, II. 3 hr. PR: Physics 225, 226. Mr. Pavlovic

283. Thermodynamics. I. 3 hr. PR: 10 hr. of college physics, calculus. Application of first and second laws of thermodynamics to physical systems. Mr. Vehse

284. Kinetic Theory. II. 3 hr. PR: 10 hr. of college physics, calculus. Boltzman distribution, viscosity, diffusion, thermal conductivity, specific heat. Mr. Pavlovic

287, 288. Introduction to Mathematical Physics. I, II. 3 hr. per sem. PR: 10 hr. of college physics, calculus. Boundary value problems in vibration, heat conduction, hydrodynamics, special relativity. Mr. Thomas

Graduate Division

321, 322. Physical Optics. I, II. 3 hr. per sem. PR: Physics 221, and a course in differential equations. Staff

331, 332. Advanced Classical Mechanics. I, II. 3 hr. PR: Calculus, Physics 231, 232. Lagrangian and Hamiltonian formulation of mechanics, Hamilton-Jacobi theory, small oscillations. Mr. Rexroad

333, 334. Advanced Electricity and Magnetism. I, II. 3 hr. PR: Physics 233, 234, and a course in differential equations. Wave propagation, electrodynamics of charged particles. Mr. Jefimenko

341, 342. Research Seminar. I, II. 3 hr. PR: Consent. Discussion of problems encountered in particular fields of research, and their relation to other areas of physics. Staff

351, 352. Quantum Mechanics. I, II. 3 hr. per sem. PR: Physics 225, 226. Schroedinger's equations, hydrogen atom, perturbation, molecular forces. Mr. Levine

353. Advanced Quantum Mechanics. I. 3 hr. PR: Physics 351, 352. Study of relativistic theory, many electron systems, introduction to quantum electrodynamics. Staff

363, 364. Nuclear Physics. I, II. 3 hr. per sem. PR: Physics 225, 226. Theory of nuclear forces, transformation, energy levels. Mr. Thomas

383. Statistical Mechanics. II. 3 hr. PR: Physics 283, 352. Classical statistics, Boltzman, F-D, and B-E statistics, theory of fluctuations. Mr. Vehse

397, 398. Research. I, II. 1-6 hr. per sem. PR: Consent. Staff

POLITICAL SCIENCE

Professors Williams, Frasure, and Stewart; Associate Professor Hayhurst; Assistant Professors Drake, Gibson, Gilkey, Rice, Ross, and White; Assistant Professor (part-time) Reynolds.

NATURE AND OBJECTIVES OF THE POLITICAL SCIENCE CURRICULUM

The political science curriculum provides a systematized course of study of the origin, basis, and nature of the state in its many and varied aspects. These include: principles, organization, and structure of political institutions, both domestic and foreign; the processes and functioning of government; interrelationships between the political institution on various levels of government; political behavior; the control of government instrumentalities and the means for holding its agents responsible; and the identification and analysis of public problems falling within the range of government. Course offerings in the Department of Political Science provide a basic general knowledge of the field, as well as more extensive and intensive training in the specialized areas of political science, particularly on the senior and graduate levels.

Primary departmental objectives may be classified under four principal headings as follows:

1. To develop an understanding of the role of government in modern society, thus contributing to a general, liberal education and to preparation of students for a career in the public service.

2. To impart a basic knowledge and understanding of the techniques and processes of government and administration to those persons who look forward to a career in the public service.

3. To provide pre-professional training for students who are preparing to enter the legal profession.

4. To provide advanced and specialized instruction, through the Ph.D. degree, for persons who wish to enter teaching or research in the field of political science.

The political science curriculum, therefore, enables the major in this field to gain an understanding of the political society in which he lives and also to plan his academic program so as to prepare himself for a career of public service.

Courses Suggested for Political Science Majors

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Laboratory Sci.	4	Laboratory Sci.	4
Foreign language	3	Foreign language	3
Electives, Group 1	3-4	Electives, Group 1	3-4
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed.	1	Phys. Ed.	1
	14-17		14-17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pol. Sci. 1	3	Pol. Sci. 2	3
Foreign language	3	Foreign language	3
Hist. 52	3	Hist. 53	3
Econ. 1	3	Econ. 2	3
Psych. 1 or Sociol. 1	3	Philos. 4	3
		Electives	1-2
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed.	1	Phys. Ed.	1
	17-19		17-20

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pol. Sci. 150	3	Pol. Sci. 120	3
Pol. Sci. 200	3	Pol. Sci. electives	6-9
Pol. Sci. electives	3-6	Elective, Group 3	3
Elective, Group 3	3	Elective, Group 5	3
Elective, Group 4	3	Elective, minors	3
Elective, minors	3		
	18-20		18-21

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pol. Sci. 170	3	Pol. Sci. 171	3
Pol. Sci. electives	6-9	Pol. Sci. electives	6-9
Electives, minors	6-9	Electives, minors	6-9
	18-21		18-21

REQUIREMENTS FOR MAJORS

Hours. Undergraduate majors in political science are required to take at least 26 hours of upper-division course work in the department. There must be a first minor consisting of 12 hours of upper-division courses, normally in history, economics, sociology, psychology, or philosophy, and a second minor of 6 hours of upper-division work in a related field.

Required Courses. Each undergraduate major is required to take Political Science 1 (3 hr.) or 2 (3 hr.). Departmental majors are encouraged to take both Political Science 1 and 2.

Distribution of Courses. The major in political science should work out his program in such a way as to secure a well-rounded knowledge of the field, as well as to concentrate in some particular area. Although the 26 hours of upper-division work in political science is the minimum requirement, students should take at least 32 hours.

The following are distribution requirements for an undergraduate major in political science:

1. At least one upper-division course in each of the six groups into which the offerings of the department are divided.
2. At least three upper-division courses in some one group.

GROUPINGS OF UPPER-DIVISION COURSES BY FIELDS

I. *American National, State, and Local Government*
Pol. Sci. 111, 113, 120, 210, 211, 213, 218, 221, 225, 226, 310, 311, 314, 320-321, 324, 325-326.

II. *Politics and Policy Development*
Pol. Sci. 130, 231, 232, 233, 234, 330-331, 334.

III. *Public Administration*
Pol. Sci. 140, 241, 242, 243, 244, 245, 344, 346-347.

IV. *Foreign and Comparative Government*
Pol. Sci. 150, 250, 251, 252, 253, 254, 255, 256, 351-352, 354.

V. *International Relations, Organizations and Law*
Pol. Sci. 160, 261, 262, 263, 264, 265, 266, 361-362, 364.

VI. *Political Theory*
Pol. Sci. 170, 171, 272, 273, 274, 374, 375-376.

Courses of Instruction

Lower Division

1. Elements of Democratic Government. I, II. 3 hr. Introduction to government. Origin, forms, and functions of the state; organization and forms of government; and the relations of groups and individuals to the state. Primarily for freshmen. Staff

2. The American Federal System. I, II. 3 hr. A survey course in American national government. Intended primarily for freshmen and sophomores. Staff

Upper Division

101. Introduction to Government. I, II. 3 hr. (Exclusively for students in the College of Agriculture and the College of Engineering). A consideration of the basic principles and operation of national, state, and local government in the United States. Staff

111. Functions of American National Government. I. 3 hr. The activities of the executive branch of government, particularly as they relate to social and economic development; expansion of government activities and services since 1932. Mr. Ross

113. American Constitutional Principles. II. 3 hr. U.S. Constitution as interpreted by the Supreme Court. Treatment is analytical rather than historical. Text supplemented by some leading cases. Primarily for pre-law students. Mr. White

120. State and Local Government. I, II. 3 hr. Survey of the legal basis, structure, and operation of state and local governments, their relations with each other and their place in the federal system. Mr. Hayhurst

130. Political Parties and Electoral Processes. I, II. 3 hr. The nature of political parties. Public regulation of parties and electoral processes. A close examination of suffrage, nominating devices, campaign procedures, and the conduct of elections. Mr. Ross

140. Introduction to Public Administration. I, II. 3 hr. Introductory study of the development, organization, procedures, processes, and human relations factors of governmental administration in American democracy. Mr. Stewart and Mr. Drake

150. Contemporary European Governments. I, II. 3 hr. Comparative analysis by countries of constitutions, political structures, and functions, with major emphasis upon the United Kingdom, France, Russia, and West Germany. Mr. Williams

160. International Relations. I. 3 hr. Introduction to contemporary world politics. Just enough background to make present-day international affairs more understandable. Mr. Frasure

170. History of Political Thought: Plato to Machiavelli. I. 3 hr. Examination of major political ideas from the Greeks to sixteenth century with special emphasis upon development of natural law and western conception of justice. Mr. Williams and Mr. Gibson

171. History of Political Thought: Machiavelli to Bentham. II. 3 hr. PR: Pol. Sci. 170 or consent. Analysis of the political ideas which developed from the separation of faith and reason, the culmination of this movement in rational integral liberalism, and the origins of modern conservatism as expounded by Edmund Burke. Mr. Williams and Mr. Gibson

200. Research Materials and Techniques in Political Science. I. 3 hr. A study of basic source materials in political science and of the techniques and methods of governmental research. Mr. Reynolds

210. American Political Institutions. I. 3 hr. PR: Pol. Sci. 2 or consent. Development of the Constitution, Congress, the Presidency, and the Supreme Court as institutions with special attention to current problems and issues. Mr. Stewart and Mr. Drake

211. Problems of American National Government. II. 3 hr. This course is intended to give recognition to the major contemporary problems of government. Extensive readings of background materials as well as current literature. Mr. Stewart and Mr. Drake

213. American Constitutional Law and Theory. II. 3 hr. PR: Pol. Sci. 2 or consent. Basic principles of American constitutional law as developed through interpretation with special emphasis on constitutional theories and national development. Primarily for seniors and graduate students. Mr. Gilkey

218. Government and Business. I or II. 3 hr. Pol. Sci. 2 or consent. An examination of government regulations of the economy dealing with the origin and development of public politics, constitutional and policies basis of regulation, relationships between political and economic institutions and processes, and an evaluation of the consequences of regulatory policies. Mr. Hayhurst

221. West Virginia Government and Administration. I, II. 3 hr. A study of the organization and operation of the state government of West Virginia. Mr. Ross

225. Municipal Government. II. 3 hr. Legal basis, structure, operation, and problems of municipal government and municipal relations with other governmental units. Mr. Hayhurst

226. Problems of State and Local Government. I. 3 hr. An examination of current problems of state, county, and municipal governments. Students are expected to have completed Pol. Sci. 120 or its equiv. Mr. Ross

231. History of Political Parties. I. 3 hr. An examination of the growth of political parties in the United States. Analysis of issues in presidential campaigns as they relate to political party development. Mr. Ross

232. Public Opinion and Propaganda. II. 3 hr. Analysis of techniques of sampling and measuring public opinion; detection of propaganda; the nature of propaganda and methods of the propagandist. Mr. Ross

233. Current Political Issues. I. 3 hr. An examination of political party platforms and the major issues of the political campaign. Students will be expected to examine background materials thoroughly. Mr. Ross

234. The Legislative Process. II. 3 hr. Structure and organization of legislative bodies. Powers of legislature. Detailed study of lawmaking procedures. The influence of outside forces. Mr. Ross

241. Administrative Organization and Management. I. 3 hr. PR: Pol. Sci. 140 or consent. Analysis of administrative organization and reorganization and of such management functions as leadership, planning, coordination, and financial organization. Mr. Stewart and Mr. Drake

242. Financial Administration. I. 3 hr. PR: Pol. Sci. 140 or consent. Survey of methods and problems of fiscal management, including budgeting, accounting, tax administration, expenditure control, auditing, purchasing, and financial organization. Staff

243. Public Personnel Administration. II. 3 hr. PR: Pol. Sci. 140 or consent. Survey of the development of public personnel management, with attention to

organization, recruitment, classification, training, morale, unionism, and other aspects of public personnel administration. Staff

244. Administrative Law and Regulations. II. 3 hr. PR: Pol. Sci. 140 or consent. Study of the law of administration, primarily by the case method, covering administrative powers, procedure in administrative adjudiciation and rule-making, discretion, judicial control, and administrative liability. Mr. Gilkey

245. Public Administration and Policy Development. II. 3 hr. PR: Pol. Sci. 140 or consent. Analysis of decision-making and policy development in the administrative process by the case method. Mr. Stewart and Mr. Drake

250. Comparative Government. I. 3 hr. An examination of the leading problems of government organization, constitutional framework, political parties and public opinion, and administrative procedures in several countries with emphasis on the United States, United Kingdom, France, Germany, and Russia. The subject is examined topically dealing with each problem in several countries. Mr. Williams

251. Modern Dictatorships. II. 3 hr. Politically undemocratic governments. Provides background of dictatorship generally, followed by treatment of several modern dictatorships. Mr. Williams

252. British Government and Politics. I. 3 hr. Intensive study of British government with emphasis upon both internal and external policies, primarily during the twentieth century. Mr. Williams

253. Contemporary Governments of the Commonwealth. II. 3 hr. A survey of imperial organization and Dominion status; a comparative study of the nature and development of political institutions in Canada, Australia, New Zealand, and South Africa. Mr. Williams

254. Governments of Asia. I. 3 hr. A survey of contemporary politics and governments of Asia. Mr. Gibson

255. Governments of Latin America. I. 3 hr. A comparative study of the major nations of Latin America. Mr. Gilkey

256. Governments of the Middle East. II. 3 hr. An examination of the governments and political forces of the Middle East. Mr. Rice

261. International Organization. I. 3 hr. Emphasis will be placed upon agencies created since the close of World War II. Some reference to development of international law and League of Nations. Mr. Rice

262. Specialized Agencies of the United Nations. II. 3 hr. A detailed treatment of the specialized agencies and related institutions. Mr. Rice

263. Public International Law. I. 3 hr. Law governing relations among nations, including development of rules, means of enforcement, and conflicts between theory and practice. Mr. White

264. Conduct of American Foreign Relations. I. 3 hr. An attempt will be made to determine the factors behind our foreign policy with emphasis upon policy during the twentieth century. Mr. Rice

265. Basic Factors in Power Politics. II. 3 hr. PR: Pol. Sci. 2 or consent. Analysis of factors of power in the nation-state system. Evaluation of nationalism and concepts of national interest in modern world politics. Mr. Rice

266. Soviet Foreign Policy. I. 3 hr. PR: Pol. Sci. 150 or 160 or consent. Basic concepts about and factors influencing choice in the formulation and execution of Soviet foreign policy; the development and present patterns in Soviet foreign relations with key states and the United Nations; possible problems and prospects in future Soviet relations. Mr. Rice

272. Recent and Contemporary Political Thought. I. 3 hr. PR: Pol. Sci. 171 or consent. An examination of integral liberalism and the forces leading to the decline of liberalism and a critical analysis of the fascist and communist ideologies with their threat to the traditions of western civilization embodied in Christianity and conservatism. Mr. Williams

273. American Political Theory. II. 3 hr. PR: Pol. Sci. 171 or consent. A survey of major political ideas and their influence upon society and government from the seventeenth century to the present. Mr. Gibson

274. Problems in Contemporary Political Thought. II. 3 hr. An intensive study of current trends in political thought through examination of the works of contemporary writers. Mr. Williams and Mr. Gibson

Graduate Division

300, 301. General Seminar in Political Science. I, II. 1 hr. each. Open to properly qualified students in conjunction with Directed Reading and Research Courses for the presentation of papers for critical consideration; some attention will be given to methodology and bibliography. Staff

310, 311. Directed Reading and Research in American National Government. I, II. 2-4 hr. each. Mr. Stewart, Mr. Drake, and Mr. Gilkey

314. Seminar in American National Government. I. (Every fourth year). 3 hr. PR: Consent. Mr. Stewart

320, 321. Directed Reading and Research in State Government. I, II. 2-4 hr. each. PR: Pol. Sci. 120 or consent. Mr. Hayhurst and Mr. Ross

324. Seminar in State and Local Government. I. (Every fourth year). 3 hr. PR: Consent. Mr. Hayhurst and Mr. Ross

325, 326. Directed Reading and Research in Local Government. I, II. 2-4 hr. PR: Pol. Sci. 225 or consent. Mr. Hayhurst

330, 331. Directed Reading and Research in Politics. I, II. 2-3 hr. PR: Pol. Sci. 130 or consent. Mr. Ross

334. Seminar in Politics and Policy Development. I. (Every fourth year). 3 hr. PR: Consent. Mr. Ross

344. Seminar in Public Administration. I. (Every fourth year). 3 hr. PR: Consent. Mr. Stewart

346, 347. Directed Reading and Research in Public Administration. I, II. 2-4 hr. each. PR: Pol. Sci. 140 or consent. Mr. Stewart and Mr. Drake

351, 352. Directed Reading and Research in Comparative Governments. I, II. 2-4 hr. each. Mr. Williams

354. Seminar in Comparative Government. II. (Every third year). 3 hr. PR: Consent. Mr. Williams

361, 362. Directed Reading and Research in International Relations. I, II. 2-4 hr. each. Mr. Frasure and Mr. Rice

364. Seminar in International Relations. II. (Every third year). 3 hr. PR: Consent. Mr. Rice

374. Seminar in Political Theory. II. (Every third year). 3 hr. PR: Consent. Mr. Williams

375, 376. Directed Reading and Research in Political Theory. I, II. 2-4 hr. each. Mr. Williams and Mr. Gibson

380. Thesis. I, II. 2-6 hr. Staff

REHABILITATION COUNSELING

Coordinator Brown; Assistant Coordinator Downes.

This program provides graduate professional education for rehabilitation counseling.

The Graduate Rehabilitation Counseling Program

The College of Arts and Sciences through its Department of Psychology and Social Work, in participation with the Guidance Division of the College of Education, cooperates in the curriculum of the Rehabilitation Counseling Program in the Graduate School. The deans of the above colleges, the above Department Chairmen, and the Program Coordinator constitute the Advisory and Policy Committee responsible for the curriculum.

Graduates of this program are prepared to enter private and public agencies and facilities providing services to handicapped persons.

Admission requirements and procedures are set forth in the *Announcements* of the Graduate School.

Courses of Instruction

General Prerequisites: Twenty-one semester hours in the social sciences, or education. The 300 series courses are designed as an integrated program for students working toward the M.S. degree in rehabilitation. Courses are open to other students by consent and as required by their curricula.

370. Seminar in Medical-Vocational Aspects. I. 2 hr. PR: 21 hr. in social sciences or education. Contribution of medicine in the rehabilitation process from referral to vocational placement of handicapped persons. Mr. Downes

384. Seminar in Personnel-Vocational Counseling Aspects. II. 3 hr. PR: 21 hr. in social sciences or education. Occupational information dealing with principles of preparation and placement of handicapped persons into employment. Mr. Downes

386. Problems and Workshops. I, S. 1-3 hr. Rehabilitation in theory and techniques in problems in blindness, epilepsy and mental retardation. Course also provides for concentrated study in special institutes, such as orientation of new vocational rehabilitation personnel. Mr. Downes

387. Field Work Training. I, II, S. 1-12 hr. PR: Consent, following at least one academic semester in classroom. Field practice (internship) in selected agencies, rehabilitation centers, clinics, or hospitals in a rehabilitation setting conducting an organized program of services for the mentally or physically handicapped. Such practice will be under the direct supervision of faculty and agency personnel. Variable credit: minimum of 50 clock hours per semester hour of credit. Mr. Brown and Mr. Downes

388. Introduction to Vocational Rehabilitation. I. 3 hr. A study of problem and extent of disablement, historical development and legal basis, concepts, processes, and case development techniques in vocational rehabilitation as a public service to the mentally and physically handicapped. Mr. Brown

389. Non-Casework Aspects. I, II, S. 1 hr. PR: Min. of 5 sem. hr. of field work training. Course is designed to provide post-field work opportunity to clarify concepts, and processes, in light of field training experiences. Non-casework responsibilities of counselors are covered. Mr. Brown

390. Counseling Practicum. I, II. 3 hr. PR: Graduate standing and consent. Counseling techniques dealing with the theory and practice of rehabilitation counseling. Mr. Brown and Mr. Downes

SOCIAL WORK

Professors Scher and Fulton; Associate in Psychiatric Social Work Palacios; Assistant Professors Ellison, Mudd, Rhudy, and Schneider; Instructor Williams; Lecturers Bateman, Loftus, and Sacks.

The Department of Social Work provides graduate professional education for social work, courses for employed workers, and an undergraduate curriculum designed to provide the student with a basic understanding of social welfare as a system of social institutions which has been developed to meet human needs.

Contemporary American social welfare programs are integrally related to our history and current social and political changes. Welfare programs are of such significance that every educated citizen should have some knowledge of their origins, philosophy and structure. This basic knowledge is offered in a group of 200 level courses which have the following specific objectives:

1. To assist the student to understand social welfare as a system of social institutions in a context of social change and changing values in a democratic society.
2. To assist the student in the development of a capacity for critical assessment of the meaning of important social welfare policies and programs for human well-being in the United States and elsewhere.
3. To assist the student in the integration of other knowledge, drawn from academic studies and life experiences, into a personal point of view regarding the rights and responsibilities of the individual in American society.
4. To assist students to gain a general, non-specialized, understanding of the structure and function of social work as a professional service in social welfare programs.

The Graduate Social Work Program

The graduate program in Social Work requires two years of full-time study, which includes class work on campus and supervised practice in affiliated social agencies. This course of study and practice leads to the degree of Master of Social Work. The program is accredited by the Council on Social Work Education, the central standard–setting body for the field.

Admission requirements and procedures are set forth in the Graduate School *Announcements.*

Courses for Employed Workers

The Department of Social Work offers a series of courses which are designed to meet the needs of men and women employed in health, education and welfare agencies. Such courses are given both on campus and in extension. Those listed on the 200 level are open to properly qualified men and women who are working toward their bachelor's degree or toward master's degrees in related fields. Courses in this group on the 300 level are open only to workers with the Master's Degree in Social Work.

Courses of Instruction

212. The Heritage of American Social Welfare. I. 3 hr. A general introduction to social welfare in the United States. History, philosophy, programs and problems. Social welfare as a social institution. The American way in welfare. The emphasis is on what the citizen needs to know about welfare problems and solutions. Staff

213. Social Services for Families and Children. II. 3 hr. PR: S.W. 212. The history, philosophy and structure of American programs in the fields of income maintenance, family services and child welfare. Staff

214. Social Services in Secondary Settings. I. 3 hr. PR: S.W. 212. The history, philosophy and structure of American programs in the fields of mental health, medical care, the schools and corrections. Staff

215. The Profession of Social Work. II. 3 hr. PR: S.W. 212 and one other of the above courses. History and philosophy of social work as a professional service; its place in society; its purpose, underlying values, knowledge, and methods. Staff

Courses of Instruction: M.S.W.

301. Casework I. I. 3 hr. Emphasis is placed on understanding the problems involved in asking for, using and relinquishing help; on interviewing and recording; and on securing familiarity with services, policies and procedures of typical social agencies. Discussion is based on case records and readings in professional literature. Mrs. Ellison

302. Casework II. II. 3 hr. Continuation of S.W. 301. Application of generic casework principles and concepts, drawing upon the student's field work experience and additional case materials from various settings. Staff

303. Social Casework III. II. 3 hr. Analysis of case situations of increasing complexity involving deviate and normal behavior. Case materials drawn from medical, psychiatric, authoritative, child welfare and family service settings are used to develop the relationship of theory to practice in varied settings and the relationship of the caseworker to other disciplines. Staff

305. Introduction to Social Group Work. II. 2 hr. Principles and methods used by social workers to help individuals use group relationships for individual growth and improved social functioning. Mr. Sacks

306. The Social Services I. I. 2 hr. Study and analysis of public and private programs in selected fields of social work practice in the United States, generally, and West Virginia and its geographical area, more specifically. The philosophy and history of social service, including European traditions and models. The administrative structure and patterns of financing of social welfare services. Current problems and issues. Mr. Fulton

307. The Social Services II. II. 2 hr. Continuation of S.W. 306. Covering other major fields of social work practice. Staff

308. The Social Services III. II. 3 hr. A further analysis and evaluation of social services. Students will be encouraged to work on individual or group projects related to current issues in the field. Staff

311, 312. Field Instruction. I, II, S. 5 hr. each. Field instruction and practice in selected agencies under general direction of the faculty and under direct supervision of an agency supervisor or faculty member. Staff

314. Field Instruction. I, II. 1-4 hr. Field instruction and practice in a selected agency, under general direction of the faculty. Supplements S.W. 311 and 312. Staff

317. Group Process and Social Organization. I. 2 hr. Selected sociocultural concepts as related to social work practice. Consideration of role theory; small group theory; the family, social stratification; and social organization. Mr. Schneider

320. Growth and Behavior I. I. 3 hr. Man as a psychosocial, biological entity. Normal physical, psychological and social development. Theories of personality structure and dynamics. The mechanisms for maintaining social functioning under stress. Mr. Palacios

321. Stress and Adjustment. I. 2 hr. Reactions to psychological, biological and social stress. The nature of health and disease. Concepts of adjustment, homeostasis and stress. Mr. Scher

322. Growth and Behavior II. II. 3 hr. Further study of the process of personality growth. Application of psychodynamic principles to the study of emotional and mental illness. Consideration of the major organic and functional disorders. Staff and Psychiatric Lecturers

323. Growth and Behavior III. II. 3 hr. An advanced course in the biological, psychological and social determinants of human behavior with emphasis on social functioning as the measure of adjustment. Mr. Palacios

331, 332. Advanced Field Instruction. I. 5 hr. ea. Continuation of S.W. 311 and 312, usually in a different setting. Staff

334. Advanced Field Instruction. I, II, S. 1-4 hr. Continuation of S.W. 311 and 312. Designed to supplement S.W. 331 and 332. Staff

340. Social Work Research. II. 3 hr. Introduction to research and the scientific method. The scientific approach to social welfare problems. Elements of research method. Mr. Schneider

341. Problem Report. S, I, II. 1-2 hr. per sem. or term. Total required: 3 hr. Substantial exploration of a professionally significant problem. Staff

360, 361, 362. Seminar. II. 3 hr. Intensive study in student's area of special interest. Individual conferences with staff; guided reading program; preparation of an individual written report. Seminar meetings for all students supplement individual study. Staff

Courses of Instruction: Employed Workers Only

230. Public Welfare. 3 hr. An introduction to the history, philosophy and structure of public welfare, including public assistance and programs for the aged, survivors and disability insurance; historical development, administrative structures, perspectives. Staff

240. Child Welfare. 3 hr. The physical, social and psychological needs of children; services provided by public and private agencies to parents and to children who need protection, assistance, foster care, adoption, or services in their own homes; historical background. Staff

250. Introduction to Social Casework I. 3 hr. The psychology of client and caseworker and the general character of casework help. Lecture, discussion and analysis of selected case materials. Staff

251. Introduction to Social Casework II. 3 hr. PR: S.W. 250 or equiv. Further study in the general character of casework help. Case analysis, lectures and class discussion of casework method. Staff

260. Introduction to Growth and Behavior I. 3 hr. Study of man as a psychosocial, biological entity. Structure and dynamics of personality development. Models of personality. Staff

261. Introduction to Growth and Behavior II. 3 hr. PR: S.W. 260 or equiv. Further study in the dynamics of personality growth and behavior. Special consideration of deviant development and behavior. Staff

370. Supervision. 3 hr. For supervisors in social casework practice. The course is concerned with methods in the teaching of casework skills to beginning or less experienced workers through the supervisory relationship. Staff

375. Individual Consultation. 1-3 hr. per sem. or term. For graduate social workers, including supervisors, who wish to increase their skills through individual consultation with a member of the social work staff. Programs will be designed to meet individual needs and normally will involve guided reading, case discussions and regular office conferences. Staff

SOCIOLOGY

Professors Gibbard and Miller; Associate Professor Kerr; Assistant Professors Silberstein and Weller; Instructors Rice and Zawacki.

The study of sociology should help the student increase his understanding of the society in which he lives. An undergraduate major in sociology provides basic preparation for teaching social sciences in high school and for professional careers in social work and other fields involving interpersonal relations. The study of sociology should be an aid in citizenship and intelligent participation in modern life.

A major in sociology consists of 18 to 24 hours of upper-division courses including as a rule Sociol. 202, *Introduction to Social Research;* either Sociol. 243, *Introduction to Anthropology* or Sociol. 248, *Primitive Society,* and Sociol. 246, *Types of Sociological Theory.*

A student planning to major in sociology should take Sociol. 1 in either his freshman or sophomore year, and Sociol. 104 in his sophomore year.

The following program is offered as a guide to students in planning their programs, but need not be followed exactly.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Laboratory Sci.	4	Laboratory Sci.	4
Electives Group 1	3-4	Electives Group 1	3-4
Mil. or Air Sci. 1	1	Mil. or Air Sci. 2	2
		Phys. Ed.	1
	14-17		14-17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Sociol. 1	3	Sociol. 104	3
Foreign language	3	Foreign language	3
Speech 11 (either Sem.)	0-3	Speech 11 (either Sem.)	0-3
Psych. 1 (either Sem.)* or Psych. 3	0-3-4	Psych. 1 (either Sem.)* or Psych. 3	0-3-4
Econ. 1 or Pol. Sci. 1	3	Econ. 2 or Pol. Sci. 2	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Electives	0-4	Electives	0-4
	17-18		17-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Elective Group 3 (if not fulfilled)	3	Elective Group 3 (if not fulfilled)	3
Sociology electives	6	Sociol. 243	3
Minor subject elective	3	Sociology electives	6
Electives	5-6	Minor subject elective	3
		Electives	2-6
	17-18		17-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Sociol. 202	3	Sociol. 246	3
Sociology elective	3	Sociology elective	3
Minor subject elective	3	Minor subject elective	3
Electives	8-9	Electives	8-9
	17-18		17-18

*If Psychology is not elected to fulfill the laboratory science requirement. Otherwise, courses which satisfy Group 3 requirements are recommended in place of psychology. If not met in the sophomore year, the Group 3 requirement may be satisfied in the junior year.

Courses of Instruction

Lower Division

1. Introduction to Sociology. I, II. 3 hr. Basic concepts; fundamental institutions and functions of society. Staff

Upper Division

Prerequisites for Sociology courses in the "200" series: Sociol. 1 or 102, or Social Sci. 1, 2 (or equivalents).

102. Principles of Sociology. I, II. 3 hr. Analysis of nature and operation of our society; formulation of sociological principles. (A first course mainly for upper-division students. Not for credit for students with credit for Sociol. 1.) Staff

104. Social Problems. I, II. 3 hr. Examination, within a sociological framework, of such topics as labor-management relations, social class conflict, family disorganization and parent-child relations, race relations, juvenile delinquency and crime, religious adjustment, and social planning. Mr. Weller

160. Family Living. I, II. 3 hr. A course without prerequisites, for students in all divisions of the University, to help them attain knowledge, values, and skills with respect to dating, courtship, mate selection, engagement, marriage, parenthood, and family life. Mr. Kerr

202. Introduction to Social Research. I. 3 hr. Trends in social research; examination of methods and techniques. Mr. Gibbard

205. Urban Sociology. II. 3 hr. Sociological analysis of institutional structure, social values, and individual goals in urban-industrial society; bureaucratization, collectivization, and mass culture; emphasis on political, economic, religious, and family institutions. Mr. Weller

208. The Community. S. 3 hr. An analytical course intended chiefly to provide background data for students interested in programs of community action. Topics to be included are: the basic characteristics of communities; community institutions and resources; social cleavages within the community; and community survey and community planning. Mr. Gibbard

210. Marriage and the Family. I, II. 3 hr. Sociological analysis of the contemporary family and its problems. Mr. Kerr

211. Sociology of Childhood. II. 3 hr. Adjustment of child to American culture. Mr. Kerr

220. Social Change. I. 3 hr. Sociological analysis of the major changes now going on in our society, of the forces underlying them, and of the tensions to which they give rise. Alternative future directions; rational manipulation and planning for social change. Mr. Weller

224. Social Stratification. I. 3 hr. Description and analysis of various types of stratification systems, such as class and caste; social mobility, and status-striving. The course emphasizes the place of status, prestige, and power in the structure of American society. Mr. Silberstein

229. Population and Migration. I. 3 hr. Population theories; growth, composition, and distribution of American population; immigration and culture pluralism; internal migrations and their consequences. Mr. Gibbard

231. Race Relations. I. 3 hr. Race relations in the U.S. with emphasis on the American Negro. Mr. Gibbard

233. Criminology. I, II. 3 hr. Explanation of crime; critical study of criminal justice, penal methods, and reform movements. Mr. Weller

234. Juvenile Delinquency. S. 3 hr. A scientific study of the nature, extent, and causes of delinquency in the United States. Methods of treatment, correction, and prevention, with emphasis on the work of the juvenile courts. Mr. Weller

235. Collective Behavior. I. 3 hr. Analysis of new group formation and behavior following social dislocation, social unrest, crowd behavior, and other forms of social contagion; the public and public opinion; social movements. Mr. Silberstein

243. Introduction to Anthropology. II. 3 hr. Biological history of man, analytical study of social organization, culture, and intellectual life of primitive man. Mrs. Rice

244. Culture and Personality. II. 3 hr. Significant interrelations between the individual and his culture. Mr. Silberstein

246. Types of Sociological Theory. II. 3 hr. Examination of leading schools of sociological thought in our day. Mr. Zawacki

248. Primitive Society. II. 3 hr. Description and analysis of several relatively simple societies; their family life, kinship systems, politics, economics, and religious practices. Mrs. Rice

250. Human Relations in Industry. II. 3 hr. The sociology of industrial relations. The factory or business firm as a social system. Formal and informal relations within the plant. Mr. Gibbard

270. Group Dynamics. (Same as Psych. 270). I. 3 hr. An interdepartmental course, combining psychological and sociological approaches, in which the dynamics of groups in operation are considered. Mr. Rankin and Mr. Silberstein

Graduate Division

Prerequisite for all courses in the "300" series: Consent of department chairman.

371, 372. Thesis. I, II. 1-6 hr. Staff

391. General Seminar. I, II. 3 hr. Staff

392. General Seminar. I, II. 3 hr. Staff

393. Seminar in Sociological Research. I, II. 3 hr. Staff

394. Seminar in Sociological Research. I, II. 3 hr. Staff

395. Seminar in Sociological Theory. I, II. 3 hr. Staff

396. Seminar in Sociological Theory. I, II. 3 hr. Staff

SPEECH

Professors Henning, Boyd, Wasson, and Welden; Associate Professor Burrows; Assistant Professors Davis and Ford; Instructors Barnett, Cortes, Hall, Hardin, Neel, Reed, Rockenstein, and Thomas.

The curriculum of the Department of Speech is so organized that a student may receive basic training in the cultural and practical aspects of any one or more of six fields of speech: (1) interpretation; (2) public address; (3) radio; (4) speech correction and audiology; (5) teaching; and (6) theatre. In all courses of training in speech skills, professional standards of achievement are emphasized.

Major Requirements. The minimum number of hours in speech courses for a major is 36, including the following required courses: Speech 31, 32, 33, 34, 121, 140, 165, and 250. The 12 hours of electives taken in addition to these required courses must all be upper division. A total of 40 semester hours in speech may be counted toward graduation. Included in the major requirements is passage of the platform test.

Platform Test. After a speech major has completed, or is completing, the basic courses (Speech 31, 32, 33, and 34), he or she shall demonstrate proficiency in a 15-minute platform test at a time and place designated by the chairman of the department. Passage of this test shall be prerequisite to continued registration as a speech major. Two tests shall be the maximum allowed any student. Students who have achieved a B grade or better in three of their basic skills courses and, who at mid-term, have a grade of B or better in their fourth course, are exempted from the Platform Test. This does not apply to transfer students.

Forensic Activities. Intramural and intercollegiate forensics, including debate, oratory, and extemporaneous speaking, receive due attention. Speech tournaments, trips, and tours, as well as campus contests, are included in the program. Participation in the activities may lead to membership in Delta Sigma Rho, honorary forensic fraternity.

Theatrical Performances. The University Theater, in conjunction with classes in dramatics, presents a regular program of plays which afford ample opportunity for student participation. In addition, other public and semi-public performances are scheduled to provide experience for less advanced students. Membership in Alpha Psi Omega may be earned by superior work in connection with various productions.

Radio Programs. The University Radio Theater produces, through the facilities of its professionally equipped and outfitted studios, five-minute to half-hour shows for broadcasting. Many programs are recorded and are distributed to State stations.

Off-Campus Speech Services. The Department sponsors and furnishes student programs in the form of short plays, speeches, interpretative readings, and debates for off-campus performances before women's and civic clubs, community organizations, and church groups throughout the State.

Speech and Hearing Problems. Under the direction of a speech and hearing specialist, the Department maintains a clinic for diagnosis and treatment of speech and hearing deficiencies. All University students with speech and hearing handicaps may avail themselves of the services of the clinic without additional cost.

Suggested Distribution of Courses for A.B. Degree in Speech

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Science*	4	Science*	4
Foreign language	3	Foreign language	3
Speech 31	3	Speech 32	3
Mil. or Air Sci.	2	Mil. or Air Sci.	2
Phys. Ed.	1	Phys. Ed.	1
Electives**	2	Electives**	2
	16-18		16-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Mil. or Air Sci.	2	Mil. or Air Sci.	2
Speech 33	3	Speech 34	3
History 52***	3	History 53***	3
Pol. Sci.†	3	Pol. Sci.†	3
English 5	3	English 6	3
	16-17		16-17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Speech 165	2	Speech 121	3
Speech 166	1	Sociology 102	3
Speech 140	3	Electives‡	10
Speech 250	3		
Electives‡	7		
	16		16

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Speech Elec.	6	Speech Elec.	6
Electives	10	Electives	10
	16		16

*Students working toward teacher certification should take either Biol. 1 and 2 or Physical Science 1 and 2.

**Students working toward teacher certification should schedule Art 30.

***Students working toward teacher certification should substitute Hist. 1 and 2.

†Students working toward teacher certification should substitute Social Sci. 1 and 2.

‡Students working toward teacher certification should schedule English 18, Music 10, Educ. 105, 106, 109, and Health Educ. 102.

Teacher Training. For students working toward certification in Speech, attention is called to the footnoted items in the above distribution of courses. Also, in the selection of their speech electives, such students should be certain to elect Speech 120, Speech 161, and Speech 162, all of which are required for certification in the field of Speech. A minimum of 36 hours in the field is needed for certification.

Suggested Distribution of Courses for Bachelor of Science Degree in Speech Correction

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Lab. Science*	4	Lab. Science*	4
Foreign language	3	Foreign language	3
Psychology 1	3	Speech 32	3
Speech 31	3	Sociology 1	3
Mil. or Air Sci.	2	Mil. or Air Sci.	2
Phys. Ed.	1	Phys. Ed.	1
	17-19		17-19

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Speech 33	3	Speech 34	3
History**	3	History**	3
English 3 or 5	3	English 4 or 6	3
Elective (or Music 10***)	2	Elective (or English 18***)	3
Mil. or Air Sci.	2	Mil. or Air Sci.	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Elective (or Art 30***)	2	Speech 50	3
	17-18		19-20

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Speech 150	3	Speech 253	3
Speech 254	3	Speech 258	2
Speech 256	4	Speech 259	3
Speech 257	2	Speech 270	3
Speech 268	2	Psychology	3
Elective (or Educ. 105***)	3	Elective (or Educ. 106***)	3
Educ. 100***	1	Health Ed. 102***	2
	18		19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Speech 252 or 255	3	Speech 272	3
Speech 277	2	Speech 271 or 273	3
Psychology	3	Speech 278	2
Pol. or Soc. Sci.	3-4	Psychology 236	3
Elective (or Educ. 127***)	2	Pol. or Soc. Sci	3-4
Elective (or Educ. 120***)	4	Elective (or Educ. 127***)	2
	17-18		16-17

*Students working for State Certification should take Biology 1 and 2.
**Students working for State Certification should take History 1 and 2.
***To be taken only by students working for State Certification.

Students working for a *Bachelor of Science Degree in Audiology* will follow the above program except that in the fourth year they will select Speech 255 the first semester and Speech 271 the second semester.

Courses of Instruction

Lower Division

3. Voice and Diction. I, II. 3 hr. Drills for developing proper breath support and for producing a strong, flexible, resonant voice. Emphasis upon clarity of voice for communication. Phonetics. Voices recorded and analyzed, with corrective exercises prescribed. Open to all students. Staff

6. Acting. I, II. 3 hr. Drills for developing muscular control; for overcoming inhibitions; for rendering the body expressive of thought and emotion. Co-ordination of mind and body. Open to all students. Mr. Boyd and Mr. Neel

11. Public Speaking. I, II. 3 hr. PR: English 1 and 2. Study and application of principles of practical public speaking. Training in composition and effective delivery of speeches and in skills in thinking and speaking before an audience. Mr. Davis and Staff

29. Oral Interpretation. I, II. 3 hr. Development of mental and emotional responsiveness to written material. Techniques of communicating such material to others through oral reading. Open to all students. Mrs. Hardin and Mr. Neel

31. Basic Speech Skills. I. 3 hr. Required of and limited to Speech Majors. The phonetic approach to language. Improvement of clarity, audibility, variety, and quality of voice and correct use of language. Emphasis upon development of vocal skills in accurate communication of ideas and feelings. Mrs. Hardin and Mrs. Cortes

32. Basic Speech Skills. II. 3 hr. Required of and limited to Speech Majors. The use of the body in oral communication. Integration of bodily action with voice and language for effective communication of ideas and feelings. Mr. Neel and Mr. Boyd

33. Basic Speech Skills. I. 3 hr. Required of and limited to Speech Majors. Practical application of skills developed in Speech 31 and Speech 32 to the oral interpretation of literature. Emphasis upon development of imagination and feeling, appreciation for good literature, and skill in communicating these to an audience. Mr. Neel and Mrs. Hardin

34. Basic Speech Skills. I. 3 hr. Required of and limited to Speech Majors. Study of and practice in extemporaneous speaking. Integration of the spoken word, voice, and action for accurate communication of ideas and feelings. Stress upon selection, organization, and presentation of material in good oral language. Mr. Davis and Mr. Welden

50. Speech Correction. II. 3 hr. Introductory course for those majoring in or interested in majoring in speech correction or audiology. Fundamentals of evaluation and therapeutic techniques of various oral communication disorders. Mrs. Thomas

60. Junior Varsity Debate. I. 1-2 hr. Intercollegiate debate training and participation preparatory to varsity team debating. Open to freshmen and sophomores. Mr. Barnett

61. Junior Varsity Debate. II. 1-2 hr. Continuation of Speech 60. Mr. Barnett

75. Parliamentary Procedure. I, II. 1 hr. Study of and practice in establishing rules of order and methods of conducting meetings, assemblies, societies, etc. Mr. Welden

INTERPRETATION

Upper Division

104. Advanced Oral Interpretation. I. 3 hr. PR: Speech 29. Content and form of various types of literature and advanced techniques for their oral presentation. Mr. Neel

105. Basic Problems in Interpretation. II. 3 hr. PR: Speech 29. Designed to deal with individual problems of students in interpretation. Mr. Neel

200. Art of Storytelling. S. 2 hr. PR: Consent. Principles involved in effective presentation of stories, with practical experience in classroom and before audiences. Stories of all types for adults and children studied. Mr. Welden

203. Professional Reading. I, II. 3 hr. PR: Speech 104 and consent. Intensive training in interpretation. Designed to meet needs of individual. Full length public recital prepared and presented. Limited enrollment. Staff

205. Advanced Problems in Interpretation. II. 3 hr. PR: Speech 29 and consent. Designed to deal with individual problems of advanced students in interpretation. Mr. Neel

PUBLIC SPEAKING

Upper Division

120. Group Discussion. I, II. 3 hr. PR: Speech 11. Theory and practice of various forms of group discussion. Principles, methods, and types of group discussions; application of contemporary problems. Mr. Welden

121. Argumentation and Debate. I, II. 3 hr. PR: Speech 11. Principles of argumentation, evidence, and reasoning, application to debating. Mr. Welden

123. Advanced Argumentation and Debate. I. 3 hr. PR: Speech 121. Primarily for varsity debaters and law students. Mr. Barnett

124. Advanced Argumentation and Debate. II. 3 hr. PR: Speech 123. Mr. Barnett

125. Advanced Public Speaking. I. 3 hr. PR: Speech 11. Techniques in composition and delivery of public speeches. Attention to parliamentary procedure. Mr. Davis

126. Speech for Business and Industry. I or II. 3 hr. Designed particularly to meet the needs of business executives, supervisors, foremen, public relations personnel, salesmen, etc. Study of and performance in public speaking, conference methods, making reports, committee work, management leadership, group controls, and personnel relationships. Mr. Davis

220. Speech Composition. II. 2 hr. PR: Speech 11 and consent. Materials of speech, organization, and style; application to delivery. Mr. Henning

221. Persuasion. I. 3 hr. PR: Speech 11 and consent. Study and practice in identification of factors motivating human behavior and belief, how to secure and hold attention, the uses of suggestion, the dramatization of ideas. Application to advertising and writing as well as speaking. Adapted to needs of pre-law, commerce, and journalism students. Mr. Henning

222. Forms of Public Address. II. 2 hr. PR: Consent. Composition and delivery of the oration, political speech, speech of introduction, dedicatory address, and eulogistic speech. Mr. Welden

223. Advanced Group Discussion. II. 2 hr. PR: Consent. Application of the principles and practices of group discussion to classroom teaching, the conference tables, committee work, policy-determining groups, and the public forum. Opportunities for participation by members of the class using current national and international problems. Mr. Welden

225. Interscholastic Forensics. S. 2 hr. PR: Consent. Interscholastic public-speaking activities with emphasis upon types commonly termed original speech, such as debate, oratory, and extemporaneous speaking. Opportunity for performance in each type will be provided. Mr. Henning and Mr. Welden

Graduate Division

330. History of Rhetoric. I. 3 hr. PR: Consent. Critical study of rhetoric from classical times to the present. Mr. Henning

335. History of American Public Address. II. 3 hr. PR: Consent. Critical study of leading American speakers, their biographies, speeches, and issues with which they dealt. Mr. Welden

339. Seminar: Problems in Speech. I, II. 3 hr. Mr. Henning

RADIO AND TELEVISION

Upper Division

140. Introduction to Broadcasting. I and II. 3 hr. Survey of the industry. The development of broadcasting, its responsibilities, and job opportunities. Organi-

zation of stations and their relation to networks. Federal regulations and industry codes. Technical aspects of radio and television. Brief consideration of programming and production techniques. Mr. Burrows

141. Radio and Television Announcing. I and II. 3 hr. Procedures and routines of announcing in both media. Staff assignments, regulations, logged broadcasting operations, reports, and emergency procedures. Practice in reading of news and commercial copy. Mr. Rockenstein

143. Fundamentals of Radio Production. II. 2 hr. PR: Speech 140 or consent. The operation and care of studio and control-room equipment. Nontechnical study of control and transmission of all types of radio programs. Blending of sound, music, and speech in production. Students in this class will serve as production assistants for University radio programs. Lecture and laboratory. Mr. Rockenstein

144. Radio and Television Continuity Writing. I. 2 hr. Format of all types of radio and television writing except dramatic scripts. Continuity for music programs, talks, interviews, round-table discussions, forums, and variety shows. Mr. Rockenstein

145. Fundamentals of Television Production. II. 3 hr. PR: Speech 140 or consent. Elementary treatment of technical aspects. Station organization and personnel. Theory of camera operation and picture composition. Techniques of television directing and staging. Field trips to educational and commercial stations for observation. Students in this class will serve as production assistants for University television programs. Mr. Burrows

240. Radio and Television Dramatic Writing. II. 2 hr. PR: Speech 140 and 144, or consent. Dramatic script, documentaries, poetry programs, serial dramas, and children's shows for commercial and educational purposes. Scripts are written to be aimed at definite markets. Mr. Rockenstein

242. Radio Workshop. I. 2 hr. PR: Consent. Discussion of techniques of radio production. Laboratory experience in producing programs for the Office of Educational Broadcasting. Adapted to students interested in commercial and educational broadcasting. Mr. Rockenstein

243. Television Workshop. I. 2 hr. PR: Consent. Discussion of techniques of television production. Laboratory experience in producing programs for the Office of Educational Broadcasting. Adapted to students interested in commercial and educational broadcasting. Mr. Burrows

244. Radio and Television Program Planning. II. 2 hr. PR: Speech 140 and consent. Analysis of the purpose and basic idea of a program in relation to audience composition. Requirements of effective structure. Practice in laying out program formats for all types of radio and television programming. Mr. Burrows

Graduate Division

348. Seminar: Problems in Radio. II. 3 hr. PR: Consent. Mr. Rockenstein

349. Seminar: Problems in Television. I, II. 3 hr. PR: Consent. Mr. Burrows

NOTE: For additional courses of training for television, refer to Speech 6, Speech 162, Speech 260, Speech 261, Speech 263, Speech 264, and Speech 267.

SPEECH CORRECTION AND AUDIOLOGY

Upper Division

150. Articulation and Voice Disorders. I. 3 hr. PR: Speech 50 or 250. A detailed consideration of articulation and voice disorders including speech and language retardation and esophageal speech from an etiological, diagnostic, and therapeutic point of view. Diagnostic and therapeutic contency with these disorders will be developed. Mrs. Thomas

250. Survey of Oral Communication Disorders. I. 3 hr. PR: Consent. A survey of basic concepts and principles of the disorders of speech and their treatment. Primary attention is given to the more common speech deviations. Students observe examination and corrective methods of therapists in the clinic and schools. Normal speech and hearing development of children is considered. This is an orientation course for students majoring in speech as well as teachers, school administrators, psychologists, and rehabilitation workers. Mrs. Thomas

252. Stuttering. I. 3 hr. PR: Speech 250, 251, and consent. Theories and therapies of stuttering. Mrs. Thomas

253. Hearing Problems. II. 3 hr. PR: Consent. General orientation to the field of audiology and the specialties which are included. A survey of the problems of the hearing-handicapped, basic hearing instruments, measurement procedures, and general goals of hearing therapy. Mr. Wasson

254. Applied Phonetics. I. 3 hr. PR: Speech 3, 250, or consent. A study of the standard speech sounds in our language. Use of symbols for recording speech sounds; application of the use of such symbols in representing various usages of speech; special emphasis on analyzing and recording defective speech. Dynamic concepts studied. Mr. Wasson

255. Hard of Hearing Therapy. I. 3 hr. PR: Speech 272 and consent. Bases and procedures of acoustic training and speech reading. Mr. Wasson

256. Anatomy of the Speech and Hearing Mechanism. I. 4 hr. PR: Consent. Anatomical and physiological study of the vocal mechanisms and the ear. Mr. Wasson

*257. Clinical Practice. I. 2 hr. PR: Admittance only by consent. Supervised therapy of the severe speech and/or hearing disorders. Staff

*258. Clinical Practice. II. 2 hr. PR: Speech 257 and consent. Supervised therapy of profound speech and/or hearing disorders. Staff

259. Advanced Speech Correction. II. 3 hr. PR: Speech 250, 251, 254, 256, and consent. Study of the speech-retarded child and organically based speech disorders including cleft palate, cerebral palsy, esophageal speech, and phonation. Mrs. Thomas

271. Diagnostic Audiometrics. II. 3 hr. PR: Speech 253 and consent. A study of the various pure tone and speech reception tests outlining the dimensions of hearing. Test administration and interpretation. Mr. Wasson

272. Bases of Aural Rehabilitation for Children and Adults. II. 3 hr. PR: Speech 253, 271, and consent. Study of the perceptive and behavioral problems of aurally handicapped individuals in society, and approaches to methods of alleviating and compensating for hearing loss. Mr. Wasson

273. Profound Organic Speech Disorders. II. 3 hr. PR: Speech 259 and consent. Speech and language disorders related to cerebral injury. Emphasis on aphasia and aphasia therapeutics. Differential diagnosis of children with delayed speech and language. Mrs. Thomas

275. Speech Problems of Children. II. 3 hr. PR: Consent. Normal development of speech habits in children. Diagnostic and remedial procedures for speech defects. Relationship between speech and allied activities such as reading, spelling, and disciplinary problems. Mr. Henning

*277. Advanced Clinical Practice. I. 2 hr. PR: Speech 258. Supervised diagnostic procedures and group therapy practice in schools and clinics. Case load carried. Staff

*Speech 257, 258, 277, and 278 meet the requirements of Educ. 128, which is necessary for certification.

*278. Advanced Clinical Practice. II. 2 hr. PR: Speech 277. Supervised diagnosis and therapy of profound speech and/or hearing disorders of multiple handicapped children and adults. The emphasis will be on teamwork procedures. Staff

Graduate Division

350. Experimental Phonetics. I. 3 hr. PR: Speech 254 and consent. Investigation of problems of phonetics as they are related to functional speech. Instruments used in sound analysis and an investigation of various aspects of architectural acoustics. Mr. Wasson

351. Problems in Speech Pathology. II. 3 hr. PR: Consent. The speech pathologist as a diagnostician and therapist in interdisciplinary investigations. Examination of counseling procedures, administrative practices in varied settings, and organization of programs for various pathologies of speech. Staff

352. Advanced Speech Pathology. II. 3 hr. PR: Speech 250, 259, and consent. Theories of causation and therapies for delayed language development, cleft palate, and cerebral palsy. Staff

353. Neuropathologies of Speech and Language. I. 3 hr. PR: Speech 250, 256, 273, or consent. Speech and language disturbances related to brain injury or maldevelopment. Consideration of the neurological bases, pathologies and psychological factors involved in the loss or lack of development of speech and language. Mr. Wasson

357. Seminar: Problems in Audiology. II. 3 hr. PR: Speech 253, 271, 272. Topics vary from term to term to meet student needs. Emphasis will be on advanced concepts in audiological diagnosis, aural rehabilitation and noise in industry. Mr. Wasson

358. Acoustic Instrumentation. I. 3 hr. PR: Speech 253, 271. Principles of electronic design utilized in clinical auditory testing and amplification. Evaluation and assessment of hearing aids in aural rehabilitation. Mr. Wasson

359. Seminar: Speech Pathology. I, II. 2 hr. PR: 9 hr. of speech re-education courses and consent. Mr. Wasson

THEATER

Upper Division

160. Theatrical Make-Up. I. 2 hr. Lecture-laboratory course in art of stage make-up. Practical experience provided by doing make-up for University Players productions. Mr. Ford

161. Stagecraft. I, II. 3 hr. Lecture-laboratory course in elementary problems of scenery construction, scene painting, and stage lighting. Practical experience provided on University Players productions. Mr. Reed

162. Play Directing. I. 3 hr. PR: Speech 165. Fundamentals of directing stage and television plays. Emphasis on work of director in relation to actor, stage, business, composition, movement, and rehearsal schedule. Mr. Boyd and Mr. Neel

164. Theater Workshop. I, II. 1-3 hr. Laboratory for production of University plays and informal stimulation of interest in creative arts. Open to all students. Mr. Reed

165. Theatrical Methods and Practices. I, II. 2 hr. Basic techniques and terminologies of acting, scene construction, lighting, properties, costuming, directing, and theater history. (Must accompany Speech 166 for credit.) Mr. Ford

166. Theatrical Methods and Practices Laboratory. I, II. 1 hr. Laboratory to accompany Speech 165. Participation in actual production of University Theater and Children's Theater plays. Mr. Reed

260. Advanced Acting. II. 2 hr. PR: Speech 6, 165, and consent. Characterization, script analysis, style, theories, and techniques. Designed to meet needs of individual student. Mr. Boyd

261. Theatrical Dialects. I. 2 hr. PR: Consent. Study and mastery of 12 common dialects used in theater and radio. Mr. Boyd

262. Playwriting. II. 2 hr. PR: Speech 165 and consent. Development of creative ability in dramatic composition. Study of techniques and problems of playwright. Of cultural value, but primarily a writing course. Staff

263. Scene Design. II. 2 hr. PR: Consent. Lecture and laboratory in theories of scene design for stage and television, including actual construction of designs. Open to juniors, seniors, and graduate students. Mr. Ford and Mr. Reed

264. Advanced Play Directing. II. 2 hr. PR: Speech 162, either Speech 161 or 164, and consent. Emphasis on work of directing as an integrating artist. Display of high level of proficiency in direction of a one-act play required of all students enrolled. Mr. Boyd

265. History of Theater. I. 2 hr. PR: Speech 165 and consent. Historical survey of theater from primitive times to present. Includes both oriental and occidental theaters. Mr. Neel

267. Advanced Scenery and Lighting. I, II. 2 hr. PR: Speech 161 and consent. A more technical study of scenery and lighting problems than is offered in Speech 161. Students are given opportunity for laboratory study through independent investigation and work on University Players productions. Mr. Reed

268. Creative Dramatics. I. 2 hr. PR: Speech 6 or consent. The study and practice of creative dramatic activity as a method of learning and self development for children. Mr. Ford and Mr. Boyd

Graduate Division

368. Seminar Problems in Theatre. I, II. 3 hr. Consent. Mr. Boyd

RELATED COURSES

Upper Division

170, 171, 172. Directed Speech Activities. I, II. 1-3 hr. PR: Consent of chairman of department. Chairman of department may grant credit for any extracurricular speech activity or study which is assigned to and directed by a member of the speech staff. Staff

270. Psychology of Speech. II. 3 hr. PR: 6 hr. of psychology and 18 hr. of speech. Psychological principles involved in speech situation. Analysis of roles of emotion, habit, learning judgment, rating, and imagery in speech. Mr. Henning

Graduate Division

301. Research Problems and Methods. I. 3 hr. PR: Graduate standing. Required of all candidates for Master's Degree in Speech. Mr. Davis and Mr. Henning

370. Research. I, II. 1-3 hr. PR: Speech 301, a speech seminar, and consent of chairman of department. For graduate students in speech. Mr. Henning and Staff

375. Independent Study. I, II. 1-3 hr. PR: Speech 301, a speech seminar, and consent of chairman of department. Open to graduate students in speech who are pursuing independent problems in that field. Mr. Henning and Staff

399. Thesis. I, II. 2-4 hr. Mr. Henning and Staff

The College of Commerce

History

The College of Commerce was established by the Board of Governors of West Virginia University on November 10, 1951, and began its initial year of operation in September, 1952. Prior to this, programs of study and courses leading to the bachelor's and master's degrees in business administration and economics had been offered for many years by the Department of Economics and Business Administration of the College of Arts and Sciences. In September, 1952, the Department of Economics and Business Administration became the College of Commerce.

Accreditation

The College of Commerce is accredited not only through the approval of West Virginia University by national and regional accrediting agencies, but also through full membership in the American Association of Collegiate Schools of Business. This association is the only accrediting agency in the field of professional education for business at the collegiate level.

Objectives

The primary objective of the College of Commerce is to prepare students for careers in business or for careers that require extensive training in economics. It also attempts to serve the people of the state through consultation and research in many phases of the economic and business life of the state and region.

Undergraduate Programs

Undergraduate work is undertaken in two divisions: the lower division or Pre-Commerce, in which freshmen and sophomores are enrolled, and the upper division, in which juniors and seniors are enrolled. The Pre-Commerce curriculum is designed to afford students a general educational background and to provide a foundation for the work that follows. Pre-Commerce students are enrolled in the College of Arts and Sciences.

After completion of 58 semester hours of required and acceptable elective courses with a grade average of not less than "C", the student will be admitted to the College of Commerce. Upon admission each incoming student must select a major concentration area. Although narrowly specialized training is avoided, these concentration areas permit upperclassmen to acquire knowledge in depth in those phases that are of particular interest to them. The major fields of study are as follows: Accounting, Economics, Finance, Management, Marketing, and General Business. These are fully described under "Programs of Study."

In order to provide a well-rounded background in the different phases of business and economics, a core curriculum is required. These courses are: Economic Principles, Industrial Management, Business Law, Money and Banking, Accounting, Statistics, Labor Problems, Business Finance, and Marketing. (Certain exceptions are made in the Economics major option.) Since many students do not follow ultimately the careers for which they prepare in the University, this background of fundamentals should better enable them, in terms of versatility and adaptability, to meet the changing courses of their careers than does a highly specialized program. Furthermore, it affords a comprehensive educational foundation upon which specialized programs can be built.

Graduate Programs

The College of Commerce offers programs leading to the degrees of Master of Business Administration, Master of Science in Business Administration or Economics, and Master of Arts in Economics. Students in these programs register in the Gradu-

ate School. Details about these programs and requirements for graduate degrees may be found in the *Announcements* of the Graduate School.

Bureau of Business Research

The Bureau of Business Research, functioning as an integral part of the College, was organized for the purpose of undertaking research into business and economic problems—particularly those of West Virginia. This research program is undertaken by the faculty members of the College of Commerce and by other staff members, under the general supervision of the Director of the Bureau of Business Research.

Publication of a series of monographs, the *West Virginia Business and Economic Studies,* was begun by the Bureau in 1949.

REQUIREMENTS FOR DEGREES

Bachelor's Degree

The College of Commerce offers the degrees of Bachelor of Science in Business Administration and Bachelor of Science in Economics. Candidates for these degrees must have a minimum of 128 semester hours of work and must have satisfied the College requirements as to courses and grades ("C" or 2.0 grade-point average) in order to graduate. Credit toward graduation is not allowed for English 0 or Mathematics 2. A maximum of 6 hours in Advanced Military Science or Air Science will be allowed toward credit for graduation. Students who expect to obtain a degree from the College of Commerce and who take work at other institutions must have their programs approved by the Dean of the College of Commerce before registering at another institution.

Candidates for degrees to be conferred at the close of the second semester must be present in person to receive their diplomas unless excused by the Dean. No individual may be exempted from the provisions of this University regulation, except by official action of the Board of Governors of the University.

A Second Bachelor's Degree

A student who has earned a Bachelor's Degree in one department or college of West Virginia University may become eligible for a second Bachelor's Degree by earning a minimum of 30 semester hours which include the core curriculum courses of the College of Commerce.

Master's Degree

Under the programs leading to the degrees of Master of Science in Business Administration and Master of Science in Economics, the student's program is flexible to allow for variations in academic background and interests. Each student's program is prepared in consultation with an adviser and requires his approval. For these degrees 30 semester hours of graduate credit are required, including credit for an acceptable thesis.

The degree Master of Business Administration (M.B.A.) requires 36 semester hours of graduate credit. Of this total, 24 hours are in specified courses. No thesis is required; but writing is emphasized in courses, and a comprehensive written examination must be passed prior to graduation.

In all master's programs a grade-point average of at least 3.0 (B) is required on all work applied toward a master's degree.

These graduate programs are based on a baccalaureate degree in economics or business administration comparable to those offered at West Virginia University. Deficiencies must be removed without credit through the completion of prerequisite courses specified by the adviser. Ordinarily these should be removed prior to or at the beginning of the graduate program. In the M.B.A. Program it is desirable that prerequisite courses be completed during the summer so that the student can enter the program in September.

PROGRAMS OF STUDY

LOWER DIVISION

Pre-Commerce students are expected to complete the lower-division program of study within the first two years of residence at the University. It is particularly important that Econ. 1 and 2 be completed during the sophomore years since these courses are prerequisite to all upper-division courses in the College of Commerce.

FRESHMAN YEAR

Courses	*Hr.*
English 1 and 2—Composition and Rhetoric	6
History 1 and 2—World Civilization or Humanities 1 and 2	6 or 8
Laboratory Science[1]	8
Mathematics 3—College Algebra	3
Mil. or Air Sci. 1 and 2	4
Phys. Educ.—General Program	2
Electives[2]—Men	3 or 5
Electives[2]—Women	7 or 9
TOTAL	34

SOPHOMORE YEAR

Courses	*Hr.*
Acctg. 1 and 2—Principles of Accounting	6
Econ. 1 and 2—Principles of Economics	6
English 18—Advanced English Comp.	3
History 52—American History or Pol. Sci. 2—Amer. Federal System	3
Speech 11—Public Speaking	3
Mil. or Air Sci. 3 and 4	4
Phys. Educ.—Women's General Program	2
Electives[2]—Men	6
Electives[2]—Women	8
TOTAL	31

UPPER DIVISION

Accounting

The accounting program is designed to prepare students for public accounting and for positions as accountants in business, industry, and government.

JUNIOR YEAR

Courses	*Hr.*
Acctg. 111 and 112—Intermediate Accounting	6
Acctg. 115—Cost Accounting	3
Bus. Law 111 and 112—Bus. Law	6
Econ. 125—Statistics	3
English 123—Business English	3
Finance 111—Business Finance	3
Mgmt. 111—Industrial Management	3
Electives—Non-Commerce[4]	6
TOTAL	33

SENIOR YEAR

Courses	*Hr.*
Acctg. 113—Advanced Accounting	3
Acctg. 217—Auditing Theory	3
Econ. 111—Money and Banking	3
Econ. 115—Labor Problems	3
Mrkt. 111—Principles of Marketing	3
Electives—Commerce[3]	9
Electives—Non-Commerce[4]	3
Electives—Unrestricted	3
TOTAL	30

Economics

This program is designed for those who wish to emphasize economics in their training for business, for those who wish to undertake graduate work for an advanced degree in this field, and for those who wish to enter government service.

[1]A laboratory science may be chosen from Biology, Chemistry, Physics, Botany, Zoology, Psychology, Geology, or Physical Science.

[2]Elective courses chosen from the following departments are recommended: English, History, Humanities, Mathematics, Philosophy, Political Science, Psychology, Sociology, Speech, or Foreign Languages. Students who select a foreign language must complete 6 hours in the same language at the University. Credit toward graduation is not allowed for English 0 or Mathematics 2.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Econ. 111—Money and Banking	3	Econ. 222—History of Economic Thought	3
Econ. 115—Labor Problems	3	Econ. 235—Business Cycles	3
Econ. 125—Statistics	3	Econ. 241—Public Finance	3
Econ. 221—Economic Theory	3	Electives—Commerce	12
English 123—Business English	3	Electives—Non-Commerce[4]	6
Finance 111—Business Finance	3	Electives—Unrestricted	3
Electives—Commerce	6		
Electives—Non-Commerce[4]	6		
Electives—Unrestricted	3		
TOTAL	33	TOTAL	30

Finance

This program is designed to meet the needs of those students who plan to enter government service or to become associated with the financial or insurance department of banks, commercial firms, and industrial organizations.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Bus. Law 111 and 112—Bus. Law	6	Econ. 115—Labor Problems	3
Econ. 111—Money and Banking	3	Econ. 235—Business Cycles	3
Econ. 125—Statistics	3	Econ. 241—Public Finance	3
English 123—Business English	3	Finance 150—Investments	3
Finance 111—Business Finance	3	Electives—Commerce	12
Finance 115—General Insurance	3	Electives—Non-Commerce	3
Mgmt. 111—Industrial Management	3	Electives—Unrestricted	3
Mrkt. 111—Principles of Marketing	3		
Electives—Non-Commerce	6		
TOTAL	33	TOTAL	30

Management

This program is designed to prepare students for the many types of positions in management, especially those in production and in industrial relations. Although it does not provide technical training, it does provide a foundation upon which specialized training can be developed.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Bus. Law 111 and 112—Bus. Law	6	Mgmt. 112—Production Management	3
Econ. 111—Money and Banking	3	Mgmt. 216—Personnel Management	3
Econ. 115—Labor Problems	3	Mgmt. 225—Business Policy	3
Econ. 125—Statistics	3	Mrkt. 112—Marketing Management	3
English 123—Business English	3	Electives—Commerce	12
Finance 111—Business Finance	3	Electives—Non-Commerce	3
Mgmt. 111—Industrial Management	3	Electives—Unrestricted	3
Mrkt. 111—Principles of Marketing	3		
Electives—Non-Commerce	6		
TOTAL	33	TOTAL	30

[3]Students may apply toward the baccalaureate degree no more than 9 hours of elective accounting courses.

[4]A maximum of 6 hours credit toward graduation will be allowed for Advanced Military or Air Science.

Marketing

This program is designed to prepare students for positions in the field of distribution. The required and suggested courses include work in the areas of sales management, sales promotion and advertising, marketing research, and procurement as carried on by manufacturing, wholesaling, and retailing establishments.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Bus. Law 111 and 112—Bus. Law	6	Econ. 111—Money and Banking	3
Econ. 115—Labor Problems	3	Mrkt. 115—Principles of Retailing	3
Econ. 125—Statistics	3	Mrkt. 120—Principles of Advertising	3
English 123—Business English	3	Mgmt. 225—Business Policy	3
Finance 111—Business Finance	3	Electives—Commerce	12
Mgmt. 111—Industrial Management	3	Electives—Non-Commerce	3
Mrkt. 111—Principles of Marketing	3	Electives—Unrestricted	3
Mrkt. 112—Marketing Management	3		
Electives—Non-Commerce	6		
TOTAL	33	TOTAL	30

General Business

A student selecting the General Business Program has a wider choice of electives than does one who selects a more specialized program. This curriculum is recommended to those who have not decided upon a specialized field of study but who desire a well-integrated program in Business Administration.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Bus. Law 111 and 112—Bus. Law	6	Finance 115—General Insurance	3
Econ. 111—Money and Banking	3	Mgmt. 216—Personnel Management	3
Econ. 115—Labor Problems	3	Electives—Commerce	15
Econ. 125—Statistics	3	Electives—Non-Commerce	6
English 123—Business English	3	Electives—Unrestricted	3
Finance 111—Business Finance	3		
Mgmt. 111—Industrial Management	3		
Mrkt. 111—Principles of Marketing	3		
Electives—Non-Commerce	6		
TOTAL	33	TOTAL	30

COURSES OF INSTRUCTION

ACCOUNTING*

Professor Vincent; Associate Professor Dennler; Assistant Professor Johnson; Lecturers Croasmun and Skaggs.

1. Principles of Accounting. I, II. 3 hr. PR: Sophomore standing. The fundamentals of accounting for business enterprises: the accounting cycle, journals and ledgers, working papers, statements.

2. Principles of Accounting. I, II. 3 hr. PR: Accounting 1. Further study of the accounting process with emphasis on assets, liabilities, and net worth; manufacturing accounts; analysis of financial statements.

*Economics 2 is prerequisite to all upper-division courses.

111, 112. Intermediate Accounting. I, II. 3 hr. per sem. PR: Accounting 2. Analysis of accounting theory and practice as applied to business firms; assets valuation, liabilities, income determination.

113. Advanced Accounting. II. 3 hr. PR: Accounting 112. Accounting for partnerships, consolidations, installment sales, consignments, receiverships, reorganizations, branches, foreign exchange, and estates and trusts.

115. Cost Accounting. I. 3 hr. PR: Accounting 2. Fundamentals of cost determination with emphasis on the significance of cost data and their interpretation; process, job-order, and standard costs.

213, 214. Income Tax Accounting. I, II. 3 hr. per sem. PR: Accounting 112. Tax theory and practice as developed from regulations of the Internal Revenue Service; problems in preparation of tax returns for individuals, partnerships, and corporations.

216. Advanced Cost Accounting. II. 3 hr. PR: Accounting 115. Advanced work in the application of cost theory and procedures to cases and problems, which emphasize the managerial use of cost information.

217. Auditing Theory. I. 3 hr. PR: Accounting 112. Auditing fundamentals; objectives, standards and procedures; introduction to working-paper techniques; procedure statements of the American Institute of CPA's.

218. Auditing Practice. II. 3 hr. PR: Accounting 217. Application of auditing theory and procedures, with emphasis on decisions which involve judgment and are important in independent audits; audit working papers and reports; case studies.

220. Accounting Systems. I. 3 hr. PR: Accounting 112. The adaption of accounting procedures to the demands of the firm, with emphasis on theoretical factors important to efficiency and internal control; system surveys and reports, the design of forms, office machine applications.

224. Advanced Accounting Problems. II. 3 hr. PR: Minimum of 18 hours in accounting with an average grade of "B" or higher. Analysis and solution of representative C.P.A. problems.

230. Advanced Accounting Theory. I. 3 hr. PR: Accounting 112, 115, and consent. A critical analysis of accounting concepts and standards with emphasis on their origin, development, and significance.

301. Managerial Control. II. 3 hr. PR: Economics 125. The use and significance of the quantitative techniques of accounting, statistics, and budgeting for planning, control, and decision making.

329. Seminar in Accounting. I or II. 3 hr.

331, 332. Thesis. I, II. 2 or 3 hr.

BUSINESS LAW*

Assistant Professor Hartzler.

111. Business Law. I, II. 3 hr. The study of certain aspects of contract and tort law with special emphasis on the nature of law and the American judicial system and the interaction and interrelationship of law, morals, cultural values, and social responsibilities of businessmen.

112. Business Law. I, II. 3 hr. PR: Business Law 111. An intense study of the nature of law and its functions with special reference to contracts, torts, sales,

*Economics 2 is a prerequisite to all upper-division courses.

negotiable instruments, and credit transactions. Economics and law, social consequences of court decisions, and theories and philosophies of law are also emphasized.

ECONOMICS*

Professors Alvis, Campbell, Coleman, Roberts, and Thompson; Associate Professor Gavett; Assistant Professors Braff, Leyden, Mischaikow, Newhouse, and Stocks; Visiting Assistant Professor Mattis; Instructor Cecil.

1. Principles of Economics. I, II. 3 hr. PR: Sophomore standing. Organization and principles of economic activity.

2. Principles of Economics. I, II. 3 hr. PR: Economics 1. A continuation of Economics 1.

111. Money and Banking. I, II. 3 hr. Our system of monetary and banking arrangements, viewed in relation to functioning of the economic system as a whole.

115. Labor Problems. I, II. 3 hr. An introduction to labor economics and labor relations in industry, including the interaction of economic forces, union policies, personnel practices, and labor law.

125. Statistics. I, II. 3 hr. PR: Math. 2 or 3. Basic statistical methods employed in collection, presentation, analysis, and interpretation of business and economic data such as analysis of frequency distributions, time series, inference, index numbers, and correlation.

205. Current Economic Problems. S. 3 hr. PR: Economics 1 and 2 or consent. For students in Education only. A course designed to acquaint public school teachers with reliable source material in economics and to instruct them in studying current economic problems.

209. Problems in Economics. I, II. 1-3 hr.

210. Comparative Economic Systems. I or II. 3 hr. Structure and processes of existing economic systems throughout the world including review of basic principles of free enterprise, socialistic, communistic, and fascistic societies. Comprehensive analysis based on current and recent experiments in these economies.

217. Trade Unionism. I or II. 3 hr. PR: Economics 115 or consent. An analysis of the structure, government, attitudes, and policies of organized labor; the implications of union policy.

218. Collective Bargaining. I or II. 3 hr. PR: Economics 115 or consent. Theory and practice of collective bargaining; including contract issues, types of relationships, and the role of government policy.

219. The Economics of Wages and the Labor Market. I or II. 3 hr. PR: Economics 115 or consent. The determination of wage levels and structure; the functioning and organization of labor markets.

220. Introduction to Quantitative Analysis. I or II. 3 hr. PR: Economics 125. Study of the principal mathematical techniques employed in economic analysis; an introduction to econometrics.

221. Economic Theory. I. 3 hr. Training and experience in use of analytical methods and techniques needed in dealing with fundamental economic problems.

222. History of Economic Thought. II. 3 hr. Economic ideas in perspective of historic development.

225. Transportation. I. 3 hr. Development of an inland transportation system and relations and policies of transport agencies.

230. Public Utilities. II. 3 hr. Development of regulation; economics of valuation and rate making.

235. Economic Growth and Business Cycles. I or II. 3 hr. PR: Economics 125 or consent. Industrial fluctuations; causes and possible remedies.

241. Public Finance. I or II. 3 hr. Governmental fiscal organizations and policy; taxes and tax systems with particular emphasis upon the Federal Government and the State of West Virginia.

245. Government and Business. II. 3 hr. Government in its role of adviser and umpire; analysis of governmental policies and practices affecting business.

250. International Economics. I or II. 3 hr. Development of trade among nations; theories of trade; policies, physical factors, trends, and barriers in international economics.

251. Economic Development. II. 3 hr. A comprehensive study of the problems, changes, and principal policy issues faced by non-industrialized countries in the process of economic development.

256. Advanced Statistics. II. 3 hr. PR: Economics 125 or equiv. An advanced approach to statistical analysis with emphasis on probability, inference, and multi-varied statistical techniques.

301. Managerial Economics. II. 3 hr. An analysis of markets and the problems of management in appraising business conditions and in adjusting to changes in production demand, costs, level of output, and profits.

302. Research and Reports. I. 3 hr. A study of sources of business information and research procedures, with application in the preparation of reports.

310. Contemporary Economic Theory. II. 3 hr. PR: Economics 221. Recent developments in economic theory such as those relating to imperfect competition, monetary problems, and collectivist economy.

315. Bibliography and Research. I. 2 hr. Sources of information; research procedures; analysis and interpretation of data; preparation of manuscripts.

319. Seminar in Economics. II. 3 hr.

320. Quantitative Analysis. II. 3 hr. PR: Economics 220. Econometrics and an examination of mathematical models employed in economic analysis, such as linear programming, input-output analysis, game theory, and statistical decision making.

331, 332. Thesis. I, II. 2 or 3 hr.

FINANCE*

Assistant Professors Newhouse and Wright.

111. Business Finance. I, II. 3 hr. PR: Accounting 1 and 2 or consent. Legal and economic aspects of business formation, operation, and readjustment; social control of business activity.

115. General Insurance. I, II. 3 hr. Theory of risk and its application to insurance; principles underlying all forms of insurance—life, property, casualty, fire, and surety.

*Economics 2 is a prerequisite to all upper-division courses.

120. Life Insurance. I. 3 hr. PR: Finance 115. Principles of life-insurance protection; legal regulation of insurance companies.

150. Investments. I. 3 hr. PR: Finance 111 or consent. Investment analysis and management for the individual and the firm.

161. Real Estate. II. 3 hr. Principles and practices of real estate business.

216. Casualty Insurance. II. 3 hr. PR: Finance 115. An analysis of liability, automobile, accident and health, workmen's compensation, and other casualty coverages. The forms and operations of casualty carriers, theories and methods of rating the casualty lines, and insurance regulation as it affects casualty coverages.

217. Property Insurance. I. 3 hr. PR: Finance 115. An analysis of fire, marine, and inland marine insurance with particular reference to the theories of underwriting used in these lines. The case method of study is utilized.

313. Financial Administration. II. 3 hr. PR: Finance 111. A study of problems in business finance including those related to the financial structures of corporations and the working-capital and fixed-capital needs of a firm.

329. Seminar in Finance. I or II. 3 hr.

331, 332. Thesis. 2 or 3 hr.

MANAGEMENT*

Professors Coleman and Isaack; Assistant Professor Hamelman.

111. Industrial Management. I, II. 3 hr. The assignment of managerial personnel to specialized activities, location and layout of manufacturing plants, materials management, and analytical methods of manufacturing management.

112. Production Management. I, II. 3 hr. PR: Management 111. The management and administration of manufacturing and production activities with the proper coordination and control of them to achieve production goals.

213. Problems in Business Administration. I or II. 1-3 hr.

216. Personnel Management. I, II. 3 hr. Principles and practices in the direction, coordination, and remuneration of manpower.

225. Business Policy. I, II. 3 hr. PR: Senior standing and consent. Integrated study of policies, organization, facilities, and control techniques of business enterprises.

301. Administrative Practices. I. 3 hr. PR: Management 111. A study of the function of supervision and the problem of human relationships in complex situations.

313. Production Administration. I. 3 hr. PR: Management 111. The review and application of new analytical techniques to complex manufacturing problems.

323. Seminar in Business Policy. II. 3 hr. PR: Consent. An integrated study of policies, organization, facilities, and control techniques of business enterprises.

329. Seminar in Management. I or II. 3 hr.

331, 332. Thesis. I, II. 2 or 3 hr.

*Economics 2 is a prerequisite to all upper-division courses.

MARKETING*

Professor Roberts; Associate Professor Crooks; Assistant Professor Haas.

111. Principles of Marketing. I, II. 3 hr. Analysis of those activities through which business firms direct the flow of their goods and services to consumers and users.

112. Marketing Management. I, II. 3 hr. PR: Marketing 111. The application of fundamentals and theory to the analysis of marketing cases and the development of marketing strategies.

115. Principles of Retailing. I, II. 3 hr. PR: Marketing 111. A study of organization, management, and merchandising in retailing establishments, with emphasis on planning and control of stocks, and the buying, pricing, promotion and selling of merchandise.

120. Principles of Advertising. I, II. 3 hr. PR: Marketing 111 and 112. Introduction to principles and practices of advertising, including preparation of complete advertising campaign.

210. Industrial Purchasing. I. 3 hr. PR: Marketing 111. A survey of corporate procurement problems facing modern purchasing executives.

215. Marketing Research. II. 3 hr. PR: Consent. The utilization of present-day marketing research techniques in the solution of practical marketing problems, with particular reference to West Virginia.

313. Marketing Administration. I. 3 hr. PR: Marketing 111. The analysis of problems met by management in distributing goods and services efficiently to consumers.

329. Seminar in Marketing. I or II. 3 hr.

331, 332. Thesis. I, II. 2 or 3 hr.

The College of Education

GENERAL INFORMATION

In 1901 a department of Education was established in the College of Arts and Sciences of West Virginia University. Subsequently, departments of education evolved in the College of Engineering and the School of Music. In 1927, the College of Education was established by the Board of Governors of the University to unify professional training for school service.

Through its undergraduate and graduate courses, its seminars, its laboratory school, its cooperating public schools, its field services, and its encouragement and direction of educational investigation, the College of Education aims to contribute to educational efficiency by inculcating a liberal and more scientific conception of the functions of public schools and by providing the professional training of elementary-school and secondary-school teachers, principals, and supervisors, general school administrators, college teachers, educational counselors, and educational research specialists.

The College of Education comprises the College with its resident courses of instruction and its facilities for research; University High School with its opportunities for observation, student teaching, directed supervision, and experimentation; and cooperating public schools for supervised student-teaching experience.

The College of Education is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary teachers, secondary teachers, school service personnel and school administrators, with the Doctor's Degree as the highest degree approved.

Admission to the College of Education

The requirements for admission to the University College of Education are: (a) graduation from a first-class high school with University entrance requirements satisfied, and (b) 58 semester hours of approved college work with an average of at least two grade points per credit hour on all work presented. Students in the other colleges or universities who contemplate transferring to the College of Education should so order their courses of study as to meet junior standing and should be fulfilling the curricular requirements for the certification of teachers.

Orientation and Selection

To assist students in choosing a career in the area of teaching and to maintain adequate standards for admission to teacher-training, the College of Education requires all students pursuing teacher-education programs to participate in and complete satisfactorily the Orientation and Selection Program. The student is enrolled in this program concurrently with the first course taken in the College of Education. The transfer student who has completed the first course in Education at another institution is required to complete the requirements of the Orientation and Selection Program at West Virginia University.

Adviser

When the student enters the College of Education he is assigned an adviser from the College. The student will plan his program of work—required courses, electives, examinations, conference courses, etc.—in consultation with his adviser. Although the adviser desires to be helpful, this does not absolve the student from becoming familiar with all pertinent regulations and planning his program of work in accordance with the objective of his choice.

Teacher Placement

The University maintains a general placement service for all students and alumni who are candidates for positions suitable to their preparation. Anyone who is a candidate for a school position will, upon application, be furnished registration blanks of the central placement service. All requests for candidates will be referred to that service.

West Virginia Board of Education Regulation For Certification of Teachers

The West Virginia Board of Education requires that 100 semester hours of the 128 required for certification shall be completed in regularly scheduled campus courses. The 28 hours of permissible nonresidence courses may be earned by extension, home study (correspondence), radio, television, special examinations, and/or military service. Eighteen of the 28 hours may be applied to a Second Class Temporary Elementary Certificate and 12 hours to a Third Class Temporary Elementary Certificate. Any teacher who may be penalized by the revised ruling because of credits earned before June 1, 1954 may be certified under present regulations.

Method of Computing Grade-Point Average for Certification

For teacher certification, effective June 5, 1956, the student is responsible for every registration in a course. The grade-point average is computed on all work attempted, including work attempted at the University and at other institutions of collegiate grade.

To be eligible for recommendation for the degrees of Bachelor of Science in Secondary Education and Bachelor of Science in Elementary Education, a candidate must:

1. Comply with the general regulations of the University concerning entrance, advanced standing, classification, examination, marks, grade points, etc.
2. Satisfy the General Requirements for Certification.
3. Complete the required courses and the minimum number of hours of approved elective courses in Education.
4. Select and pursue two teaching fields for the B.S. Degree in Secondary Education and two minor teaching fields for the B.S. Degree in Elementary Education.
5. Adhere to the patterns prescribed in completing the teaching fields.
6. Present 128 hours of approved college credit, with a general average of "C" as described under General Requirements for Certification. The candidate must have completed 26 hours after enrolling in the College of Education.
7. Be at least 18 years of age, of good moral character, interested in educational work, and mentally, physically, and otherwise qualified to perform the duties of a teacher.

Fulfillment of the requirements for graduation from the College of Education of West Virginia University qualifies a candidate to apply for recommendation for a West Virginia Professional Certificate.

General Requirements For Professional (First Class) Certificates

In order to teach in the public schools of West Virginia, one must hold a certificate issued by the West Virginia State Department of Education. Before any West Virginia University applicant is eligible to receive a Professional Certificate he must have: (1) met the minimum State requirements, (2) met the University degree requirements, and (3) been recommended by the Dean of the College of Education as herein prescribed.

The College of Education will inform each of its students who is a prospective teacher, and any other prospective teacher, upon request, of the requirements for certification, and assist him in preparing a program of study to meet these requirements. It is the obligation of the student who desires such counsel to arrange a conference some time before the end of the sophomore year.

A candidate for certification is required to achieve a grade-point average of 2.0 ("C") or better as follows: (1) on the total of college credits earned; (2) on the hours earned in Education; (3) in student teaching; and (4) in each of the teaching fields required for all teaching certificates.

The Dean of the College of Education recommends candidates for Professional Certificates only after the completion of work for the baccalaureate degree. To be eligible for recommendation by the University for any West Virginia Professional Certificate, the applicant must have done student teaching under the supervision of the College of Education.

At least 45 semester hours of upper-division work, West Virginia University standards, are required for all teaching certificates. The qualifications herein prescribed are minimum, not optimum or maximum, and must be met by all candidates.

GENERAL SUBJECT-MATTER AND EDUCATION REQUIREMENTS FOR PROFESSIONAL CERTIFICATES VALID FOR FIVE YEARS

Required Courses	*Professional Grades* 1-9	*Professional Grades* 7-12	*Professional Grades* 1-12 *Music & Speech*
English and Speech	*Hr.*	*Hr.*	*Hr.*
Written and Spoken English English 1, 2	6	6	6
Advanced Written and Spoken English English 18	3	3	3
Study and Appreciation of Literature English 5 or 6 (American)	3)	3)	3)
Or	*or*	*or*	*or*
English 3 or 4 (English)	3)	3)	3)
Backgrounds of (Child) Literature Lib. Sci. 203	3		
Speech			
Speech 3 (Voice and Diction) *or* Speech 11 (Public Speaking)	3 3		
Minimim Requirement	18	12	12
Social Science			
Development of Social Institutions Hist. 1, 2	6)	6)	6)
Or	*or*	*or*	*or*
Humanities 1, 2	8)	8)	8)
Fundamental Social Problems Soc. Sci. 1, 2	8	8	8
American History: Hist. 52, 53	6		
West Virginia History: Hist. 150	3		
Geography Geog. 107 (Introduction) *or* Geog. 109 (Econ.)	3		
Minimum Requirement	26-28	14-16	14-16

Required Courses	*Professional Grades* 1-9	*Professional Grades* 7-12	*Professional Grades* 1-12 *Music & Speech*
Science and Mathematics	*Hr.*	*Hr.*	*Hr*
Biol. 1, 2		8)	8)
Or		*or*	*or*
Phys. Sci. 1, 2		8)	8)
Biol. 1, 2 *And*			
Phys. Sci. 1			
Or			
Phys. Sci. 1, 2 *And*			
Biol. 1	12		
Conservation			
Forestry 140	3		
Mathematics for Teachers			
Math. 6	3		
Minimum Requirement	18	8	8
Music			
Music in Human Relations			
Music 10	2	2	2
Music as an Art and Science			
Music 11	2		
Music Materials and Procedures			
Music 12	2		
Minimum Requirement	6	2	2
Art			
Art Appreciation			
Art 30 *or* 130	2	2	2
Creative Expression in the Fine			
Arts: Art 1	2		
Creative Expression in the Applied			
Arts: Art 2	2		
Minimum Requirement	6	2	2
Physical Well-Being			
Orientation in Physical Education			
For Men, Phys. Ed. 1, 2	0	2	2
For Men, Phys. Ed. 1, 2, 43	4	0	0
For Women, Phys. Ed. 3;			
3 hr. from 4 to 25, 101, 102	0	4	4
For Women, Phys. Ed. 41, 42, 43	4	0	0
Health Ed. 101 *or* 102	2	2	2
Minimum Requirement	6	4-6	4-6

(Even if the Physical Education requirement for graduation from the University has been waived because of a special permit from the University Health Service, 2 semester hours in Physical Education are required of an applicant for a Professional Certificate, Grades 7-12; or 4 semester hours of Physical Education are required of an applicant for a Professional Certificate, Grades 1-9, or for a Professional Certificate, Grades 1-12).

Professional Education	*Hr.*	*Hr.*	*Music Hr.*	*Speech and Hearing Therapy Hr.*
Orientation and Selection, Ed. 100	1	1	1	1
Human Growth and Dev., Ed. 105, 106	6	6	6	6
Stu. Teaching, Sec. Sch., Ed. 124		6		
Stu. Teaching, Sec. Sch., Music Ed. 125			4	
Prin. of Teaching, Sec. Sch. Ed. 120		4	4	4
Material and Methods, Sec. Sch., Ed. 150-170		2	2	
Approved Electives in Sec. Ed.		2		
Stu. Teaching, El. Sch. Music, Ed. 115			2	
Mat. and Methods, Elem. Sch. Music, Ed. 130			2	
Mat. and Methods in Public School Speech and Hearing Therapy, Grades 1-12, Ed. 127				4
Clinical Practices in Public Sch. Speech and Hearing Therapy, Grades 1-12, Ed. 128				8
Psy. and Management, El. Sch., Ed. 141	2			
Reading in El. Sch., Ed. 142	2			
Arith. in El. Sch., Ed. 143	2			
Social Studies in El. Sch., Ed. 144	2			
Science in El. Sch., Ed. 145	2			
Student Teaching in El. Sch., Ed. 146	6			
Electives in Education	2			
Minimum Requirement	25	21	21	23

(NOTE: To be recommended by the University for any Professional Certificate, students shall complete a minimum of 8 semester hours in student teaching and methods at the University.)

PROGRAMS FOR PROFESSIONAL CERTIFICATES, GRADES 1-9

Requirements for the Degree of Bachelor of Science in Elementary Education and for Recommendation for the Professional Certificate, Grades 1-9

Foundation: Lower-Division Work

In preparation for admission to the College of Education and the work of preparing for teaching in elementary schools, students will register the freshman and sophomore years in the College of Arts and Sciences and pursue the program of general education that the State Board of Education has prescribed for all students who seek recommendation for teaching certificates. This program of prescribed work is included in the "Curriculum for Professional Certificates, Grades 1-9."

Training: Upper-Division Work

Admission: For admission to the prescribed courses in Elementary Education (Educ. 141, 142, 143, 144, 145, 146, and 147), including the noncredit Conference course, students shall register the final two years in the College of Education.

Subject Matter: In lower-division work students should pursue the lower-division required courses, so that the greatest possible number of hours taken during the junior and senior years may be courses giving upper-division credit.

Graduation and Certification Requirements: To become eligible for recommendation for the degree of Bachelor of Science in Education and for the Professional Certificate, Grades 1-9, the student must complete the required curriculum and plan of work with a grade-point average of 2.0 ("C") or better, as follows: (1) on the total of college credits earned; (2) on the hours earned in Education; (3) in each of two teaching fields; and (4) in student teaching; and have been enrolled in the College of Education for at least 26 semester hours of work, including a minimum of 8 semester hours in student teaching and methods taken at the University.

(NOTE: If, because of credits earned before June 1, 1950, in partial fulfillment of the requirements for an elementary certificate, a teacher with three or more years of elementary experience prior to the date he applies for certification would be penalized by having to meet the requirements in full, as described on pages 8 and 9 of the State Certification Bulletin, he may qualify provided he has made every possible effort to meet the requirements in full and has taken no electives since June 1, 1950, until or unless all courses prescribed in said pages 8 and 9 for the desired certificate have been taken.) (State Certification Bulletin).

REQUIREMENTS FOR MINOR TEACHING FIELDS

Since this certificate is valid in the junior high school, grades 7-9, students must complete the requirements in two teaching fields. A minimum of 18 hours (15 hours in mathematics) of work prescribed for a high school teaching field is required in each field. Below are listed the general categories of work for each field. For each teaching field suggested University courses to implement the State recommendations of a minor teaching field are listed. The listed courses have been suggested by the departments concerned and approved by the College of Education. However, these suggestions should be regarded as guides rather than stringent limitations. It should be borne in mind, however, that any deviation from the recommended courses must still conform to the listed general categories.

Art—(Drawing, design, and painting) *Hr.*

Art 105 or 106, History	3
Art 111, Drawing	3
Art 113, Painting	3
Art 121-122, Design	6
Art 126, Modeling	2
Art. 220, Theory	2
or	
Art 225, Theory	3

Commerce—(Typewriting, shorthand, and accounting)

English—(Composition and Literature, English and American)

Required:	
English 3, Survey: English Literature	3
English 4, Survey: English Literature	3
English 5, American Literature	3
English 6, American Literature	3
Remaining hours from following list:	
English 138, English Literature, 1660-1744	3
English 139, English Literature, 1744-1798	3
English 140, Elizabethan Poetry and Prose	3
English 141, Literature of the Seventeenth Century	3
English 142, Shakespeare	3
English 166, American Fiction	3
English 173, Poetry	2
English 175, The Short Story	2
English 249, The Romantic Movement	3
English 250, American Romanticism	3
English 258, Victorian Prose	3
English 270, American Poetry	3

Foreign Language—(Composition, grammar, and literature)

General Science—(General biological science and general physical science, chemistry or physics)

Phys. Sci. 1, Introductory General Course	4
Phys. Sci. 2, Introductory General Course	4
Biol. Sci. 1, Introductory General Course	4
Biol. Sci. 2, Introductory General Course	4
Astronomy 106, Descriptive Astronomy	3

Home Economics—(Foods and nutrition, textiles and clothing)

H. Ec. 1, Elementary Nutrition	2
H. Ec. 2, Elementary Clothing	2
H. Ec. 15, Food Selection and Preparation	4
H. Ec. 17, Textiles	3
H. Ec. 106, Child Development	3
H. Ec. 114, Management of Family Living	2
H. Ec. 134, Principles of Home Management	2

Industrial Arts—(Mechanical drawing, general shop, and organization of industrial arts)

The Department of Industrial Arts makes no recommendation for a minor teaching field including fewer hours than the 24 hours required for the "Other Teaching Field" in Industrial Arts.

Mathematics—(College algebra)

Math. 3, College Algebra	3
Math. 4, Plane Trigonometry	3
Math. 15, Calculus I	4
Math. 116, Calculus II	4
Math. 117, Calculus III	4

(NOTE: Solid Geometry, ½ unit (or 1 unit of integrated geometry) is required. Advanced placement examinations may permit a student who has 1½ units or more of high school algebra to omit Math. 3, and a student who has ½ unit of trigonometry in high school to omit Math. 4).

Music—(Theory and applied music)

Music 1, Theory	4
Music 100, 102, 103, 105, Band, Orchestra, Chorus	2
Music 140, History of Music	3
Music 150; 80-85, Applied Music: Voice, Piano, and Instruments	4
Music 182, Music Education (secondary)	3
Music 183, Conducting	2

Physical Education—(Health problems for the school child and organization and administration of health and physical education)

	Men	*Women*
Phys. Ed. 31-32, Team Sports	0	2
Phys. Ed. 51, Fundamentals of Baseball and Gymnastics	2	0
Phys. Ed. 53, Junior & Senior High School Activities and Games	2	0
Phys. Ed. 61, Stunts, Tumbling, and Trampoline	0	1
Phys. Ed. 71, Orientation in Physical Education	2	2
Phys. Ed. 132, Folk Dancing	1	1
Phys. Ed. 177, History and Principles of Physical Education	3	3
Phys. Ed. 278, Administration of Physical Education	3	3
Health Ed. 102, The School Health Program	2	2
Safety Ed. 127, Accident Prevention and First Aid	2	2

Suggested Electives

Phys. Ed. 5, Ballroom Dance	1	1
Phys. Ed. 14, Elementary Swimming and Diving	0	1
Phys. Ed. 35, Modern Dance Technique	0	1
Phys. Ed. 52, Advanced Swimming, Life Saving, & Water Safety	1	0
Phys. Ed. 54, Individual and Dual Sports	2	2
Rec. 4, Recreation and the School	3	3

Social Studies—(American history and world geography)

Speech—(Fundamentals of speech, voice and diction, play directing, and speech correction)

Speech 3, Voice and Diction	3
Speech 6, Acting	3

Speech 11, Public Speaking 3
Speech 29, Oral Interpretation 3
Speech 162, Play Directing 3
Speech 250, Speech Correction 3

Teacher-Librarian—(Cataloguing and classification, book selection, and reference and bibliography)

Lib. Sci. 101, Reference and Bibliography 3
Lib. Sci. 203, Library Materials for Children 3
Lib. Sci. 205, Selection of Books and Related Materials for Young People 3
Lib. Sci. 207, School Library Organization and Administration 3
Lib. Sci. 222, Field Practice 3
Lib. Sci. 223, Cataloguing and Classification 3

(NOTE: A minor teaching field may be added to a Professional Certificate, Grades 7-12, by completing the requirements for minor teaching fields as listed above.)

Requirements for Second-Class Temporary Elementary-School Certificate

English — *Hr.*
(15 semester hours)
Written and Spoken English
English 1, 2 6
Adv. Written and Spoken English
English 18 3
Study and Appreciation of Lit.
English 3 or 4 (English Lit.) *or*
English 5 or 6 (Amer. Lit.) 3
Background of Child Lit.
Lib. Sci. 203 3

Social Studies — *Hr.*
(17-19 semester hours)
Development of Social Institutions
Hist. 1, 2 or Humanities 1, 2 ...6-8
Fundamental Social Problems
Soc. Sci. 1, 2 8
History
Hist. 150 3
Or
Geography
Geog. 107 (Introductory) *or*
Geog. 109 (Economic)

Science and Mathematics — *Hr.*
(11 semester hours)
Biol. 1, 2 8
Or
General Physical Sci. 1, 2 8
Arithmetic for Teachers
Math. 6 3

Health and Physical Education — *Hr.*
(4 semester hours)
Physical Education for Men
Phys. Ed. 1 and 2 *or* 43 2
Physical Education for Women
Phys. Ed. 41 and 42 *or* 43 2
Health Education
Health Ed. 101 2

Art — *Hr.*
(4 semester hours)
Art Appreciation
Art 30 *or* 130 2
Creative Expression in the Fine Arts
Art 1
Or
Creative Expression in the Applied Arts
Arts 2 2

Music — *Hr.*
(4 semester hours)
Music in Human Relations
Music 10 2
Music as an Art and Science
Music 11 2

Education — *Hr.*
(17-24 semester hours)
Orientation and Selection
Ed. 100 1
Human Growth and Development
Ed. 105, 106 6
Psychology and Management, El. Sch.
Ed. 141 2
Reading in El. Sch.
Ed. 142
Arithmetic in El. Sch.
Ed. 143
Social Studies in El. Sch.
Ed. 144
Science in El. Sch.
Ed. 145 5
Student Teaching
Ed. 147 3

Electives
(24 semester hours)

OTHER REQUIREMENTS

1. To pursue this program a student is required to: (a) enroll in the College of Education, and (b) have a Third-Class Elementary or Standard Normal Certificate, or have a minimum of one year's teaching experience in the public schools.

2. No more than 18 semester hours by extension and/or correspondence can be accepted.

3. A grade-point average of 2.0 ("C") or better, as follows: (1) on the total of college credits earned; (2) on the hours earned in Education; (3) in student teaching; and (4) in non-Education courses.

4. Thirty-two semester hours must have been completed in residence at the University or 32 semester hours must have been completed in residence at one institution with at least 16 hours completed in residence at the University.

Requirements for Provisional Professional Certificate, Grades 1-9

Provisional Professional Certificates, Grades 1-9 (valid for three years for teaching in the elementary school) will be issued to applicants who:

1. Have an undergraduate degree and the recommendation of the Dean of the College of Education.

2. Are within 18 hours of meeting the requirements for a Professional Certificate, Grades 1-9.

3. Have completed 15 hours of Elementary Education (including a course in student teaching), selected from courses applicable for a Professional Certificate, Grades 1-9.

4. Have completed a part of the required courses in English, social studies, science and mathematics, music, art, and physical education.

PROGRAM FOR PROFESSIONAL CERTIFICATE, GRADES 7-12

Education: Courses Required and Electives Approved for the Professional Certificate, Grades 7-12

(A minimum of 21 semester hours of approved Education courses is required for a Professional Certificate, Grades 7-12, and a maximum of 24 semester hours will be accepted.)

I. *Required Courses* — *Semester Hours*

Sophomore or Junior Year

Ed. 100. Orientation and Selection	1
Ed. 105. Human Growth and Development—Introduction	3
Ed. 106. Human Growth and Development—Principles of Learning	3

Senior Year

Ed. 124. Student Teaching	6)
Ed. 157-170. Materials and Methods	2) to be
Ed. 120. Principles of Teaching in Secondary Schools	4) taken as a block

II. *Approved Electives in Secondary Education—Junior or Senior Year* 2-6

Selected from Education:

Ed. 109, 150-170, 203, 221, 222, 231, 233, 259, 219 or 262, 276 or 277, 284, 285, 291. (In most cases, Ed. 109 is the preferred elective.)

High-School Teaching Fields

Students desiring to qualify for a Professional Certificate, Grades 7-12, must complete the requirements in two teaching fields.

AGRICULTURE–VOC. AGR.	*First Teaching Field*
Minimum Requirements	50 hr.
I. *Required Courses*	
1. Farm Crops, Soils, and Horticulture Agron. 1, 2, Hort. 1, 2 *or* 229	11
2. Animal, Dairy, and Poultry Science An. Sci. 11, 101, Dairy Sci. 11, and Poultry Sci. 1	13
3. Agricultural Economics Agr. Econ. 102, 104	6
4. Agricultural Mechanics Agr. Mech. 152, 153, (253), and one elective	9
5. Plant Pathology *or* Animal Science An. Sci. 102 *or* Pl. Path. 201	3-4

NOTE: Teachers of Vocational Agriculture must be approved by the State Supervisor of Vocational Agriculture and the Vocational Agriculture Teacher-Trainer.

II. *Electives in the above fields and in Agricultural Education, Entomology, Forestry, and Genetics* 7-8

Agr. Econ. 105, 131, 200, 206, 230, 271
Agr. Educ. 118
Agr. Mech. 113, 151, 159, 170, 175, 200, 252, 254, or I.E. 7
Agron. 205, 210, 211, 251, 254
An. & V. Sci. 100, 138, 141, 142, 162, 167, 206
Dairy Sci. 12, 107, 123, 124, 221, 222
Entomol. 202
Genet. 111, 112
Hort. 104, 115, 117, 206, 208, 212, 229, 232, 234
Poultry Sci. 103, 105, 106, 108, 201, 202, 213, 214

ART	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	32 hr.	25 hr.
I. *Required Courses*		
1. Freehand Drawing: Art 11 *or* 111 *or* 115, 12 *or* 112	6	6
2. Design: Art 121, 122	6	6
3. Painting: Art 113, 114	6	6
4. Modeling: Art 126	2	2
5. History and Appreciation of Art: Art 30 *or* 130; 105 *or* 106	8-9	5
II. *Elective Courses: Art (unrestricted)*	3-4	

COMMERCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	32 hr.	27 hr.
I. *Required Courses*		
1. Business Mathematics (Math. 8)	3	3
2. Accounting: Accounting 1, 2	6	6
3. Marketing or Retailing: Marketing 111 or 115	3	3
4. Typewriting: Secretarial Studies 61, 62	4	4
5. Shorthand: Secretarial Studies 125, 126	8	8
6. Secretarial Training and Office Practice: Secretarial Studies 131	3	3
II. *Electives (unrestricted in the field)*	5	

NOTE: Economics 1 and 2 are prerequisite for Marketing 111 and 115 and may be used to meet elective requirements in the first teaching field.

ENGLISH	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	35-36 hr.	24 hr.
I. *Required courses (exclusive of 6 hr. of Freshman Composition)*		
1. Written or Spoken English ..... English 18 (3 hr.) and Speech 3, 6, 11, *or* 29 (3 hr.)	6	6
2. Literature ..... English 3 and 4, *or* 163 and 164 (6 hr.) Survey: English Literature English 5, 6 (6 hr.) Survey: American Literature	12	12
II. *Electives*	17-18	6
1. Literature ..... (Upper-division period or type courses: include not more than 3 hr. in any one type or period. Suggested choices: 142, 160, 161, 166, 173, 175, 138 or 139, 140, 141; one or more "200" courses in authors or periods of special interest to the student.)	12	6
2. Two of the following ..... Journ. 215 (2 hr.) Lib. Sci. 1 or 101 (3 hr.) Speech 162 (3 hr.)	5-6	

FOREIGN LANGUAGES

A. French	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses*		
1. Elementary French: French 1, 2	6	6
2. Intermediate French: French 5, 6	6	6
3. Advanced Grammar, Conversation, and Pronunciation: French 109, 231	6	6
4. Elementary Conversation: French 103, 104	6	6
II. *Elective Courses*: French 115, 116, 118	6	

NOTE: Two semester hours may be deducted in the first teaching field for each high school unit with a maximum of six (6) hours deduction, unless the equivalent courses are taken for University credit.

B. German	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses*		
1. Elementary German: German 1, 2	6	6
2. Intermediate German: German 3, 4 ...	6	6
3. Spoken German: German 111, 112	6	6
4. Survey of German Literature: German 245*	3	3
5. History of German Language: German 251*	3	3
II. *Elective Courses*: (unrestricted)	6	

NOTE: Two semester hours may be deducted in the first teaching field for each high school unit with a maximum of six (6) hours deduction, unless the equivalent courses are taken for University credit.

*With the approval of the Chairman of the Department of Foreign Languages, courses on the 200 level may be substituted for German 245 and 251.

C. Latin	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses*		
1. Grammar and Composition: Latin 1, 2	6	4
2. Cicero's Orations: Latin 4 or 203	3	3
3. Virgil's Aeneid: Latin 235	3	3
II. *Elective Courses*: Latin or Classics (unrestricted)	18	14

NOTE: Two semester hours may be deducted in the first teaching field for each high school unit with a maximum of six (6) hours deduction, unless the equivalent courses are taken for University credit.

D. Spanish	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses*		
1. Elementary Spanish: Spanish 1, 2	6	6
2. Intermediate Spanish: Spanish 5, 6	6	6
3. Elementary Conversation: Spanish 103, 104	6	6
4. Advanced Grammar and Conversation: Spanish 109, 110	6	3 (109 only)
5. Survey of Literature: Spanish 211, 212, *or* Golden Age: Spanish 221, 222	6	3

NOTE: Two semester hours may be deducted in the first teaching field for each high school unit with a maximum of six (6) hours deduction, unless the equivalent courses are taken for University credit.

HOME ECONOMICS—General Certificate	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	37 hr.	25 hr.
I. *Required Courses*		
1. Foods and Nutrition: Home Econ. 1, 15, 115, 101, 121	8	6
2. Textiles and Clothing: Home Econ. 2 or 12 and 17; electives chosen from courses ending with 2 or 7	8	6
3. Housing, Equipment, and Furnishings: Home Econ. 23, 123, 254 (either 123 or 23 and 254 required)	8	4
4. Home Management and Family Economics: Home Econ. 4, 134, (214, 234 required)	8	4
5. Child Development and Family Relationships: Home Econ. 106, 114 (required), 126	5	5

HOME ECONOMICS—Vocational Certificate	*First Teaching Field*
Minimum Requirements	40 hr.
1. Foods and Nutrition: Home Econ. 1, 101, 121, 15, 115, 215	8
2. Textiles and Clothing: Home Econ. 2, or 12, 102, 212, 222, 17, 117, 217	8
3. Housing, Equipment, and Furnishings: Home Econ. 3, 23, 123, 254, 133, 233 (either 123 or 23 and 254 required)	8
4. Home Management and Family Economics: Home Econ. 4, 124, 134, 214 (234 and 214 required)	8
5. Child Development and Family Relationship: Home Econ. 106, 114, 126, 206, 264, 266 (106 and 114 required)	6
6. Electives	2

INDUSTRIAL ARTS	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	32 hr	24 hr.
I. *Required Courses*		
1. Drawing—Ed. 173 (IA), Ed. 174 (IA), Mech. Eng'g. 20, 26, Ed. 238 (IA)	4	4
2. General Shop—Ed. 107 (IA) or 108 (IA)	3	3
3. Organization of Industrial Arts: Ed. 197	2	2
II. *Electives* (restricted to shop courses)	23	15

Shop electives are to be taken in three or more of the shop areas, with a minimum of 6 semester hours in one and not less than 3 semester hours in two additional areas, such as:

Automotive—Ed. 247 (IA); Agr. Mech. 175
Ceramics—Ed. 122 (IA), Ed. 243 (IA); Art 126
Design—Ed. 238 (IA); Art 121, 122
Electricity—Ed. 131 (IA), Ed. 132 (IA), Ed. 248; Agr. Mech. 170, 270; E.E. 10; Phys. 113, 114
General Metal—Ed. 104 (IA), Ed. 112 (IA), Ed. 240 (IA), Ed. 241 (IA), Ed. 249 (IA), I.E. 7, 11
Graphic Arts—Ed. 180 (IA), 181 (IA), 246 (IA); Journ. 110, 170
Leather—Ed. 121 (IA), Ed. 244 (IA); Art 127
Photography—Physics 116, 257
Plastics—Ed. 121 (IA), Ed. 245 (IA)
Woodworking—Ed. 102 (IA), 103 (IA), 204 (IA)

NOTE: No credits may be counted twice by being submitted in more than one group.

NOTE: Speech 164 and 166 are recommended as electives, but may not be used to meet the minimum requirements for certification.

MATHEMATICS	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	24 hr.	22 hr.
I. *Required Courses*		
Math. 3, College Algebra	3	3
Math. 4, Plane Trigonometry	3	3
Math. 15, Calculus I	4	4
Math. 116, Calculus II	4	4
Math. 117, Calculus III	4	4

II. *Electives*	6	4

For a first teaching field, six hours of electives are needed, numbered 200 or above; for the other teaching field, four hours of electives are needed, numbered 200 or above. Courses from both the fields of algebra and geometry must be included.

NOTE: Solid Geometry, ½ unit (or 1 unit of integrated geometry) is required. Advanced placement examinations may permit a student who has 1½ units or more of high school algebra to omit Math. 3, and a student who has ½ unit of trigonometry in high school to omit Math. 4.

MUSIC	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	50 hr	24 hr.
I. *Required Courses*		
1. Theory: Mus. 1, 2, 3, 4, 117, 118, 119, or 120	16	6
2. History or Appreciation of Music: selected from Music 140, 141, 280, 281	6	3
3. Applied Music: Piano, Voice, and at least two Band and Orchestral Instruments, selected from Music 80, 81, 82, 83, 84, 85, 150, 197	16	8
4. Music Education and Organizations: First Field: Music 181 and Music 182 (both required); Music 183 and Music 184 (both required); two hours selected from Music 100, 102, 103, 105	12	
Second Field: Music 181 or Music 182; Music 183		5
Two hours selected from: Music 100, 102, 103, 105		2

NOTE: Students applying for the Professional Certificate, Grades 1-12, are required to complete 50 hours in Music.

PHYSICAL EDUCATION	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	34 hr.	28-29 hr.
I. *Required Courses*		
1. Anatomy and Kinesiology: Phys. Ed. 175	5	5
2. Physiology: Zool. 171	4	
3. Principles of Organization and Administration of Physical Education: Phys. Ed. 278	3	3
4. Health Education: Health Ed. 2, 102	4	4
5. Physical Inspection and Correction of Remedial Defects: Phys. Ed. 176	2	2
6. Theory and Practice in Physical Education	16	14

	Men	*Women*	*Men*	*Women*
a. Orientation: Phys. Ed. 71	2	2	2	2
b. Team Sports: Phys. Ed. 51, 55, 56	5	0	5	0
Team Sports: Phys. Ed. 31, 32, 63	0	3	0	3
c. Recreational Activities: Phys. Ed. 52, 54	3	0	3	0
School and Community Activities: Phys. Ed. 33, 54, 61	0	4	0	3
d. School and Community Relations: Phys. Ed. 121; Recreation 4; Phys. Ed. 53	4	0	4	0

Recreation Activities: Phys. Ed. 66; Safety Education 127; Recreation 4	0	3	0	4
e. Rhythmic Activities: Phys. Ed. 5, 132	2	0	1	0
Rhythmic Activities: Phys. Ed. 5, 35, 36, 132, 171	0	4	0	2

SCIENCES

A. BIOLOGICAL SCIENCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	32 hr.	24 hr.
I. *Required Courses*		
1. Biology 1, 2	8	8
2. Chemistry 1, 2 *or* Phys. Sci. 1, 2	8	6
II. *Electives (from below)*	16	10

Electives will be chosen from the following, and must include a minimum of 5 hours in plant life and 5 hours in annual life:

Bact. 141
Biol. 203, 204, 205, 206, 207, 209, 210, 211, 221
Bot. 104, 161, 171, 218, 224, 227, 263, 266
Entomol. 200, 202
Forestry 140, 141, 144, 145, 183
Genet. 111, 112, or 221
Plant Path. 201, 203
Zool. 171, 210, 222, 223, 265

NOTE: A candidate for a teaching certificate who elects Biological Science as a first teaching field may not elect Biological and General Science as a second teaching field.

B. BIOLOGICAL AND GENERAL SCIENCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	42 hr.	35 hr.
I. *Required Courses*		
1. Biol. 1, 2	8	8
2. Chem. 1, 2	8	8
3. Physics 1, 2 or 111, 112	8	8
4. Geol. 1, 2	3-4	3-4
II. *Electives*	14-15	8

1. Electives selected from those listed for teaching field in Biological Science (above)—a minimum of 8 hours for either teaching field. Must include a minimum of 4 hours in plant life and 4 hours in animal life. (Minimum of 16 hr. in Biological Science is required).
2. Chem. 5, 6, 15, 31, 63
3. Physics 113, 114, 116, 117, 118
4. Geol. 3, 170

NOTE: A candidate for a teaching certificate who elects Biological and General Science as a first teaching field may not elect Biological Science as a second teaching field.

C. PHYSICAL SCIENCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	36 hr.	24 hr.
I. *Required Courses*		
1. Chemistry: Chem. 1, 2	8	8
2. Chemistry: Chem. 5 or 105, 6 or 106, 31 or 131	4	4
3. Physics: Physics 1, 2 or 111, 112	8	8

II. *Electives—(at least 4 hours must be in Chemistry and/or Physics)*	16	4
1. Chemistry		
2. Physics		
3. Geology (not Geography)		
4. Astronomy (Astron. 106, 3 hr.)		

NOTE: A candidate for a teaching certificate who elects Physical Science as a first teaching field may not elect Physical and General Science as a second teaching field. Phys. Sci. 1, 2, not accepted.

D. PHYSICAL AND GENERAL SCIENCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	42 hr.	34 hr.
I. *Required Courses*		
1. Chemistry: Chem. 1, 2	8	8
2. Chemistry: Chem. 5 or 105, 6 or 106, 31 or 131	4	4
3. Physics: Physics 1, 2 or 111, 112	8	8
4. Biology: Biol. 1, 2	8	8
5. Geology: Geol. 1, 2	4	4
II. *Electives—(at least 4 hours must be in Chemistry and/or Physics)*	10	2
1. Chemistry		
2. Physics		
3. Geology: (not Geography)		
4. Biology		
5. Astronomy (Astron. 106, 3 hr.)		

NOTE: A candidate for a teaching certificate who elects Physical and General Science as a first teaching field may not elect Physical Science as a second teaching field.

E. GENERAL SCIENCE—(Although General Science is not recognized as a high school teaching field, it is recognized as a minor teaching field. See page 259.)

SOCIAL STUDIES	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses (Exclusive of general Social Studies requirements)*		
1. History: Hist. 52, 53, 150 *or* 250	9	9
2. Political Science: Pol. Sci. 2, 120, 221	3	3
3. Economics: Econ. 1 or 2*	3	3
4. Sociology: Sociol. 1, 104, or any 200 course except 202 and 246	3	3
5. Geography: Geog. 107 *or* 109	3	3
II. *Electives (upper-division courses from the five departments listed above)*	9	3

*Only 3 hours of economics are required for certification, but Econ. 1 and 2 are prerequisite to all upper-division courses in economics.

SPEECH	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	36 hr.	24 hr.
I. *Required Courses*		
1. Voice and Diction: Speech 3 *or* 31	3	3
2. Acting: Speech 6 *or* 32	3	3
3. Public Speaking: Speech 11 *or* 34	3	3
4. Oral Interpretation: Speech 29 *or* 33	3	3
5. Group Discussion: Speech 120	3	0
6. Argumentation and Debate: Speech 121	3	3
7. Introduction to Broadcasting: Speech 140	3	0
8. Stage Craft: Speech 161	3	3
9. Play Directing: Speech 162	3	3
10. Speech Correction: Speech 250	3	3
II. *Electives*: Speech (unrestricted)	6	0

TEACHER-LIBRARIAN	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	27 hr.	24 hr.
I. *Required Courses*		
1. Using Books and Libraries: Lib. Sci. 1	3	3
2. Reference and Bibliography: Lib. Sci. 101	3	3
3. Children's Literature and Story Telling: Lib. Sci. 203	3	3
4. Book Selection for Adults: Lib. Sci. 225	3	
5. Book Selection for Adolescents: Lib. Sci. 205	3	3
6. Library Resources for Children and Young People: Lib. Sci. 230	3	3
7. Administration of the School Library: Lib. Sci. 207	3	3
8. Library Practice: Lib. Sci. 222	3	3
9. Cataloguing and Classification: Lib. Sci. 223	3	3

SPEECH AND HEARING THERAPY, PROFESSIONAL CERTIFICATE, GRADES 1-12

Minimum Requirements	*Semester Hours* 48-54
I. *Required Courses*	
1. Public Speaking: Speech 11 or 34	3
2. Intro. to Speech Correction: Speech 50, 150	6
3. Adv. Speech Correction: Speech 259	3
4. Anatomy and Physiology of Speech and Hearing Mechanisms: Speech 256	4
5. Phonetics: Speech 254	3
6. Stuttering and Other Organic Disorders: Speech 252, 273	6
7. Audiology: Speech 253 and 272 required; 255, 271 (*See Note*)	6
8. Clinical Method (Observation and Practice): Speech 257, 258, 277, 278*	8
II. *Electives*: Ed. 105, Speech 270, Psych. 125 or 236	9

*These courses meet the requirement of Ed. 128. All practice teaching must be done where conferences can be held with a clinician holding the advanced certificate of the American Speech and Hearing Association in speech and/or hearing therapy. Minimum total clock hours in clinical methods and practices for certification in speech therapy to be 200, in hearing therapy 200, or in both 300, of which 100 must be in hearing therapy and 200 in speech therapy.

NOTE: Students wishing to become certified in hearing therapy will take all four courses or 12 semester hours of credit in Audiology.

REQUIREMENTS FOR PROVISIONAL PROFESSIONAL CERTIFICATES, GRADES 7-12

Provisional Professional Certificates, Grades 7-12 (valid for 3 years for teaching in junior and/or senior high school) will be issued to applicants who meet the following requirements:

1. Graduation and recommendation by the Dean of the College of Education.
2. General Requirements: Fifteen hours of secondary education, including a course in student teaching, to be selected from the courses applicable for a first-class certificate. Three-fourths of the teaching subject-matter requirements of each division of each teaching field as designed for the Professional Certificate, Grade 7-12.

GRADUATE WORK

For complete information concerning graduate work in the College of Education, see the *Announcements* of the College of Education and the *Announcements* of the Graduate School. See also the bulletin *Teacher Training Programs—Requirements for Certification.*

COURSES OF INSTRUCTION*

No courses in Education except Ed. 100, 102, 103, 104, 105, 106, 107, and 108 are open to sophomores. The following courses are required of teachers for recommendation for a Professional Certificate, Grades 7-12: Ed. 100, 105, 106, 120, 124, 150-170, and enough additional hours chosen from the following approved electives to meet the minimum requirement of 20 hours in Education: 109, 150-170 in a second teaching field, 203, 221, 222, 231, 233, 259, 219 or 262, 276 or 277, 285, 284, and 291. The following courses are required of teachers for recommendation for a Professional Certificate, Grades 1-9; Ed. 100, 105, 106, 141, 142, 143, 144, 145, and 146.

Undergraduate Division

100. Orientation and Selection. I, II, S. 1 hr. Open to sophomores and above. Acquaints students with selective processes necessary for admittance to the College of Education or the student teacher program and assists the teacher trainee in self evaluation through counseling and testing. Mr. Wagner and Staff

102. Hand Woodworking. (I.A.). I. 3 hr. Basic course for industrial arts teachers. Emphasis on design and construction of small projects; development of hand tool skills; a study of tools, materials, and processes; basic finishing information. Open to lower-division students. Mr. Brennan

103. Machine Woodworking. (I.A.). II. 3 hr. PR: Ed. 102. Use of common pieces of power woodworking equipment and safety factors involved in their use in school shops. Open to lower-division students. Mr. Brennan

104. Basic Metal Work. (I.A.). I. 2 hr. An introductory course in layout, construction and planning in sheet metal, ornamental iron, and spinning. Open to lower-division students. Mr. Ault

105. Human Growth and Development—Introduction. I, II, S. 3 hr. Open to sophomores or above. Emphasis upon competencies on the part of prospective

*Ed. 100 and Ed. 105 are prerequisite to all other courses in Education.

teachers in understanding and applying principles involved in the growth and development of children and youth. Mr. Neff, Mr. Wagner, and Mr. McAvoy

106. Human Growth and Development—Principles of Learning. I, II, S. 3 hr. PR: Ed. 100, 105. Continuation of Ed. 105 with special attention to the nature of the school program as it affects the growth and development of pupils. Open to sophomores or above. Mr. Bailey, Mr. Wagner, and Mr. Taylor

107. General Shop. (I.A.). I. 3 hr. Basic course in the practice and techniques involved in the areas of printing, bench-metal work, forging, foundry, and project planning. General shop organization emphasized. Mr. Ault

108. Advanced General Shop. (I.A.). II. 3 hr. PR: Ed. 107 (I.A.), consent. Emphasis on planning and project development. Individualized instruction in electricity, welding (arc and gas), metal lathe turning, spinning, and wood patternmaking. Mr. Ault

109. Secondary Education. I, II. 2 hr. Introduction to the problems of the secondary-school teacher. Mr. Cook and Mr. Bell

110. Maintenance and Construction of Industrial Arts Equipment. (I.A.). I, II, S. 2 hr. PR: Ed. 102 (I.A.), 104 (I.A.), and consent. A study of school shop maintenance problems and their solution, including the construction of certain types of equipment. Mr. Brennan and Mr. Ault

112. General Metalwork 2. (I.A.). 2 hr. PR: Ed. 104 (I.A.). Continuation of Ed. 104 (I.A.). Foundry practice, forging, ornamental ironwork, with emphasis on cold forming. Construction of patterns and jigs. Open to lower-division students. Mr. Ault

115. Student Teaching in Elementary-School Music. I, II. 2 hr. Observation and practice of teaching music to pupils in grades one through six. Open to seniors who have completed 27 semester hours in Music and 8 semester hours in Education with a grade-point average of 2.0 ("C") in each and a general grade-point average of 2.0 ("C"). Mr. Brown and Mrs. Glasscock

120. Principles of Teaching in Secondary Schools. I, II, S. 4 hr. PR: Open only to those who qualify for the student teaching block. Mr. Miller

121. General Crafts 1. (I.A.). I. 2 hr. Construction of projects suitable for secondary schools in leather and plastics. Development of teaching aids in these areas. Mr. Brennan

122. General Crafts 2. (I.A.). II. 2 hr. PR: Ed. 121 (I.A.). Continuation of Ed. 121 (I.A.) with emphasis on ceramics and handicrafts. Mr. Brennan

124. Student Teaching. I, II, S. 6 hr. PR: Ed. 100, 105 and 106. This course is open only to seniors and graduate students, regularly enrolled in the University, who meet the following requirements:

1. Completion of 75 per cent of the hours required in each of two teaching fields and completion of Ed. 100, 105 and 106, with a minimum general grade-point average of 2.0 ("C") and a minimum grade-point average of 2.0 ("C") in each teaching field and in Education.

2. An applicant for student teaching must submit positive evidence that he (or she) meets the requirements of physical condition and emotional stability necessary for the performance of the duties of a teacher in the public schools. Such evidence must come from the University Health Service on a form used by the College of Education.

3. This course must be taken concurrently with Ed. 120 and the appropriate course of Ed. 150-170, unless exceptions have previously been made with the Director of Secondary Student Teaching. A period of 3 hours daily

must be reserved for this and simultaneous courses for purposes of observation, discussion, and planning.

4. The second Monday in each calendar month, 7 to 9 P.M., must be reserved for teachers' meetings.

5. Because two-thirds of the program of the University High School is in the forenoon, two-thirds of the applicants must schedule this course in the morning, reserving three hours daily without interruption. Admission is by application made early in the preceding semester to the Director of Secondary Student Teaching.

6. The adviser is responsible for furnishing a check of the student's record to determine eligibility.

7. Students with no teaching experience are supposed to take this course during the academic year, Mr. Miller and U.H.S. Staff

125. Student Teaching in Secondary-School Music. I, II. 4 hr. Same requirements as Ed. 124 except in hours' credit needed. Mr. Miller and U.H.S. Staff

127. Materials and Methods in Public-School Speech and Hearing Therapy. I, II, S. 2-4 hr. PR: Permission of the director of the public-school speech and hearing therapy program. Includes experience in Grades 1 to 12. Staff

128. Clinical Practices in Public-School Speech and Hearing Therapy. I, II, S. 2-8 hr. PR: Permission of the director of the public-school speech and hearing therapy program. Includes experiences in Grades 1 to 12. This course meets the requirements of Speech 257, 258, 277, and 278. Staff

130. Materials and Methods in Elementary-School Music. I, II. 2 hr. (To be carried concurrently with Ed. 115.) Mrs. Glasscock

131. General Electricity 1. (I.A.). I. 2 hr. A study of basic electrical theory and its application in secondary-school teaching situations. Laboratory work involves the construction of electrical projects suitable for developing an understanding of electrical theory. Mr. Ault

132. General Electricity 2. (I.A.). II. 2 hr. PR: Ed. 131 (I.A.). Continuation of Ed. 131 (I.A.) with an introduction to radio, involving crystals, transistors, and tubes. Mr. Ault

141. Psychology and Management of the Elementary School. I, II, S. 2 hr. PR: Ed. 100, 105, 106, and enrollment in the elementary undergraduate program of the College of Education. Types of learning activities of the elementary school, forms of personal and social adjustment, evaluation of progress of pupils, organization of the daily program, and the management of classroom activities. Mr. McLaughlin and Staff

142. Reading in the Elementary School. I, II, S. 2 hr. PR: Ed. 100, 105, 106, and enrollment in the elementary undergraduate program of the College of Education. Modern practices in teaching reading in the elementary school. This course is to be taken concurrently with Ed. 146, Student Teaching in the Elementary School. Mr. Kennedy, Mrs. Cunningham, and Mr. McLaughlin

143. Arithmetic in the Elementary School. I, II, S. 2 hr. PR: Ed. 100, 105, 106, and enrollment in the elementary program of the College of Education. The methods and materials of learning and instruction in arithmetic. This course is to be taken concurrently with Ed. 146, Student Teaching in the Elementary School. Mr. McLaughlin and Mrs. Cunningham

144. Social Studies in the Elementary School. I, II, S. 2 hr. PR: Ed. 100, 105, 106, and enrollment in the elementary undergraduate program of the College of Education. A study of modern practices in the teaching of social studies. Emphasis on the principles and techniques underlying the community-oriented social studies program. Instructional units in such areas as the community,

social processes, foreign culture and geography, and history are developed. This course is to be taken concurrently with Ed. 146, Student Teaching in the Elementary School. Mr. McLaughlin and Mrs. Cunningham

145. Science in the Elementary School. I, II, S. 2 hr. PR: Ed. 100, 105, 106, and enrollment in the elementary undergraduate program of the College of Education. A study of modern practices in the teaching of science. Emphasis on the principles and techniques underlying the community-oriented science program. Students are guided in developing instructional units in such areas as the earth and the universe, conservation, health, living things, and physical and chemical phenomena. This course is to be taken concurrently with Ed. 146, Student Teaching in the Elementary School. Mr. Katz

146. Student Teaching in the Elementary School. I, II, S. 6 hr. PR: Ed. 100, 105, 106, 141, and enrollment in the elementary undergraduate program of the College of Education; a minimum general grade-point average of "C" (1) in the non-Educational courses and (2) in Education courses; and senior standing. An applicant for student teaching must submit positive evidence that he or she meets the requirements of physical condition and emotional stability necessary for the performance of the duties of a teacher in public schools. Such evidence shall be provided by the University Health Service on a form used by the College of Education. Ed. 142, 143, 144, and 145 must be taken concurrently with student teaching. Mr. McLaughlin and Staff

147. Student Teaching in the Elementary School. I, II, S. 3 hr. PR: Enrollment in the elementary undergraduate program of the College of Education and consent. A special course for transfer students who have completed three or more hours of student teaching in other institutions or for those who are upgrading certificates. Mr. McLaughlin and Staff

148. Student Teaching in the Elementary School. I, II, S. 3 hr. PR: Enrollment in the elementary undergraduate program of the College of Education and consent. A continuation of Ed. 147 for students who need more than three hours in directed teaching for graduation or certification. Mr. McLaughlin and Staff

149. Language Arts in the Elementary School. I, II, S. 2 hr. PR: Ed. 100, 105, 106, 141 and consent. Modern practices in teaching the language arts. Mr. Kennedy and Staff

150-170. Materials and Methods of High-School Teaching. I, II, S. 2 hr. PR: Consent. Special methods in the various secondary-school teaching fields. For West Virginia certification these courses are an integral part of Ed. 124. May also be chosen as a 2 hr. elective by students who are registered for student teaching in other fields.

The various sections of this course, with their instructors, follow:

150. Biology. 2 hr. Mr. Caruso

152. Physical Education. 2 hr. Mrs. Brock and Mr. Fizer

153. French. 2 hr. Miss Brochick

154. Speech. 2 hr. Staff

155. Library Science. 2 hr. Mrs. Callahan

156. Spanish. 2 hr. Staff

157. Latin. 2 hr. Staff

160. Agriculture. 3 hr. Mr. Butler and Mr. Bryant

161. English. 2 hr. Miss Woofter and Mrs. Post

163. Home Economics. 2 hr. Miss Cook

164. Industrial Arts. 2 hr. Mr. Ellis

165. Mathematics. 2 hr. Mrs. Dorsey and Miss Wilt

166. Physical Science. 2 hr. Mr. Caruso

167. Social Studies. 2 hr. Mrs. Semon, Miss Woofter, and Mr. Orlandi

168. Art. 2 hr. Mr. Madia

169. Music. 2 hr. Mr. Wood

170. Commerce. 2 hr. Mrs. Cunningham

173. Technical Drawing 1. (I.A.). I. 2 hr. Fundamentals of mechanical drawing with emphasis on establishment of good techniques; nomenclature, convention. Mr. Ault

174. Technical Drawing 2. (I.A.). II. 2 hr. PR: Ed. 173 (I.A.). Continuation of Ed. 173 (I.A.). Detail and assembly drawing, sketching, tracings, and methods of duplication. Mr. Ault

180. Graphic Arts 1. (I.A.). I. 2 hr. Familiarization with hand composition, linoleum block, and other methods of graphic reproduction suitable for use in secondary-school industrial arts laboratories. Mr. Brennan

181. Graphic Arts 2. (I.A.). II. 2 hr. Continuation of Ed. 180 (I.A.) with emphasis on silk screen, book binding, and offset press operations. Mr. Brennan

194. Organization of Industrial Arts. II. 2 hr. Comparative analysis of the objectives of general and industrial arts education; industrial arts content; study of the problems involved in organizing and administering industrial arts courses in unit and general shop. Mr. Brennan and Mr. Ault

202.* Primary-Kindergarten Education. I, II, S. 2 hr. PR: Consent. Application of the principles of psychology to early childhood education. Mr. Kennedy and Mrs. Cunningham

203. Organization and Administration of Adult Education. II. 2 hr. Staff

204. Advanced Woodworking, Construction, and Finishing. (I.A.). II, S. 3 hr. PR: Ed. 102 (I.A.), 103 (I.A.), or equiv. Selection of advanced projects, analysis of construction, planning, and finishing, application of machine tools. Mr. Brennan

206. Industrial Experience. (I.A.). I, II, S. 2-6 hr. Open only to students qualifying to teach industrial arts. Evaluation of educative outcome of personal employment in industry as determined by duration, experience, records, study of job, and final examination. Counts as extension credit. Mr. Brennan and Mr. Ault

208. Wood Finishing. (I.A.). I, S. 2 hr. PR: Ed. 103 (I.A.), 204 (I.A.). Practice and theory in the art of sanding, scraping, filling, dyeing, staining, waxing, and other natural and synthetic treatments to the surface of wooden articles constructed in the industrial arts shop. Mr. Brennan

212. Evaluation of Pupil Progress. I, II, S. 2 hr. PR: Consent. Practical techniques for evaluating pupil progress and teaching effectiveness. Mrs. Cunningham and Mr. McLaughlin

219. Adult Education in Homemaking. I, II. 2 hr. PR: 30 hr. of Home Economics and 7 hr. of Education. Current trends and present activities in the field of adult education. Organization of adult classes, development of unit outlines; consideration of teaching methods; illustrative material, and bibliography for use in adult classes. Staff

*To receive graduate credit for courses numbered 200-299, the student must have had at least 17 hours in undergraduate Education.

221. Audio-Visual Resources for Instruction. I, II. 2 hr. Multisensory techniques in using wide varieties of materials and resources in teaching. One laboratory period per week, time to be arranged. Mr. Gunselman

222. Current Practices in Secondary Education. I, II, S. 2 hr. Staff

223. Clinical Experience in Student Teaching. I, II, S. 2 hr. PR: Ed. 124 or equiv., permission of Director of Secondary Student Teaching. This is an advanced course in student teaching, stressing clinical procedures in classroom learning problems, industrial arts therapy, and other related areas. Mr. Miller and Staff

226. Advanced Student Teaching (Elementary). I, II, S. 3 hr. of student teaching or equiv., permission of the Director of Elementary Student Teaching. Emphasizes types of experiences not generally included in beginning student teaching. Mr. McLaughlin and Staff

231. Philosophy of Education. II, S. 2 hr. PR: 5 hr. of Education courses, senior standing. Evaluation of educational theories and practices in terms of several judgments of ultimate worth set up by man in his endeavor to understand life's real meaning. Mr. Bell

233. Educational Sociology. S. 2 hr. PR: 5 hr. in Education courses, senior standing. Impacts of institutions of society upon school, and school's counter-impact upon social institutions and agencies. Mr. Cook and Mr. Bell

238. Industrial Arts Design. (I.A.). I, S. 2 hr. PR: Consent. Fundamentals of design, characteristics of period and modern furniture, and construction details. Mr. Madia

240-250. These courses are designed to prepare versatile teachers of industrial arts and to meet state certification requirements. The abbreviated introduction to specific crafts through these courses is intended to provide broad rather than specialized experience and to prepare the teacher to teach the fundamentals of crafts rather than to attain vocational competence. Prospective teachers should elect, from these courses, those which will supplement their previous training in organizing and directing the industrial arts program.

240. Advanced Metal Working. (I.A.). I, S. 2 hr. PR: Ed. 104 (I.A.). Problems in design and construction involving the use of metal sheets, bar, and wire. Mr. Madia

241. Jewelry. (I.A.). II, S. 2 hr. PR: Ed. 103 (I.A.). Design and construction of projects in costume jewelry made from gold filled and silver wire and sheets; gold and silver soldering; tool design and tool making for special operations. Mr. Madia

242. Upholstering. (I.A.). S. 2 hr. PR: Ed. 103 (I.A.). Original and renewal installation of selected materials for springing, stuffing, and covering furniture; incidental reinforcement and repairs. Each student will need to purchase a simple kit of tools. Mr. Madia

243. Advanced Ceramics. (I.A.). II, S. 2 hr. PR: Ed. 122 (I.A.). Concentration in ceramic manipulation, particularly on the potter's wheel; glaze experimentation. Mr. Brennan

244. Advanced Leather Work. (I.A.). I, S. 2 hr. PR: Ed. 121 (I.A.). Advanced leather work techniques with emphasis on leather carving. Mr. Brennan and Mr. Ault

245. Advanced Plastics. (I.A.). II, S. 2 hr. PR: Ed. 121 (I.A.). Continued manipulation of plastic materials. Construction of dies, forms; internal carving. Mr. Brennan and Mr. Ault

246. Advanced Graphic Arts. (I.A.). II, S. 2 hr. PR: Ed. 180 (I.A.), 181 (I.A.) or equiv. Binding, silk-screen and offset reproduction methods. Provision is made for concentration in one unit with opportunity for personal research in student's chosen area. Mr. Brennan

247. Auto Mechanics. (I.A.). S. 2 hr. Practice and theory in operation and maintenance of internal combusion engines. Staff

248. Advanced Electricity. (I.A.). II, S. 2 hr. PR: Ed. 131 (I.A.) or equiv. A study of the technical phases of electricity with emphasis on planning shop courses, shop equipment and layout, and development of instructional aids. Mr. Ault

249. Sheet Metal. (I.A.). II, S. 2 hr. Sheet metal layout and construction of sheet metal articles, involving cutting, bending, forming, riveting, soldering, and similar operations. Mr. Ault

250. Industrial Arts for Elementary Schools. (I.A.). II, S. 2 hr. Particularly designed for elementary teachers. Planning units around activity areas and development of manipulative operations to supplement these units. Work includes simple wood and metal operations, plastics, and crafts suitable for the elementary pupil. Mr. Madia

251. Production of Audio-visual Resources. I, S. 2 hr. PR: Ed. 221. Practical participation in planning and producing audio-visual media for use in teaching, for supporting the school's public relations program, and in educational research. Mr. Gunselman

259. The Music Education Program. S. 2 hr. PR or parallel: Ed. 124 or consent. Organization and administration of the complete music education program for grades one through twelve. Mr. Brown

262. Vocational Home Economics in Secondary Schools. I, II. 3 hr. PR or parallel: Ed. 120, 124, 163; 25 hr. in Home Econ. Primarily for seniors and teachers of home economics. Miss Noer

270. Special Problems and Workshops. I, II, S. 1-4 hr. PR: 14 hr. in Education. To take care of credits for special workshops and short intensive unit courses on methods, supervision, and other special topics. Maximum of 8 sem. hr. may be applied toward the Master's Degree, of which no more than 6 sem. hr. shall be in extension. Staff

271. Educational Statistical Methods. I, II, S. 2 hr. PR: Senior or graduate standing. Elementary methods in educational statistics. Mr. Bailey

272. Internship in Industrial Arts Therapy. (I.A.). I, II, S. 8 hr. Internship in a clinical setting providing individualized instruction in the teaching techniques of industrial arts and therapeutic practices in rehabilitation of the handicapped. Mr. Brennan

274. Workshop: Economic Education. S. 3 hr. A workshop for principals, teachers, and supervisors with emphasis on the economic structure of our society and methods of integrating economics into the school program. Sponsored jointly by the College of Education and the College of Commerce. Mr. Lee

275. Developing the Core Program. II, S. 2 hr. PR: May be taken with or following student teaching. Mr. Cook

276. Teaching Young and Adult Farmer Classes. I, S. 2 hr. PR: Ed. 100, 105, 106. Participation in conducting young and adult farmer classes and school-community food preservation centers; organization, course of study, and methods of teaching and supervision, and young farmers' association. Mr. Butler.

277. Organizing and Directing Supervised Farming Programs. II, S. 2 hr. PR: Ed. 160 or consent. Planning programs of supervised farming, supervising and evaluating such programs for all-day students, young farmers, and adult farmers. Mr. Butler

284. Pupil-personnel Administration. I, II, S. 2 hr. PR: Ed. 100, 105, 106. Pupil accounting, guidance, extracurricular activities, and control. Open only to senior students and graduates. Mr. Harrah

285. The Junior High School. I, II. 2 hr. PR: Ed. 100, 105, 106, and consent. Development, philosophy, program, and practices of the junior high school. Open only to seniors and graduates. Mr. Harrah

291. Exploratory Reading. S. 2 hr. PR: Consent. For those who feel need for wider acquaintance with books. Mr. Kennedy

292. Advanced Instruction in Typewriting. (B.E.). S. 2 hr. PR: Teacher Certification in Commerce. Psychological principles of motor skill applied to the teaching of keyboard, development of speed and accuracy; diagnostic and remedial treatment, motivation, production units, evaluation and grading; teaching of electric typewriter. Staff

293. Advanced Instruction in Shorthand and Transcription. (B.E.). S. 2 hr. PR: Teacher Certification in Commerce. Techniques for developing reading and writing skills; patterns of dictation to achieve objectives; transcription practices and standards of mailability. Staff

294. Seminar in Business Education. (B.E.). S. 2 hr. PR: Teacher Certification in Commerce. Group and individual problems in business education. Staff

295. Advanced Instruction in Bookkeeping (B.E.). S. 2 hr. PR: Teacher Certification in Commerce. Group and individual problems in business education. Staff

296. Advanced Instruction in Office Practice and Business Machines. (B.E.). S. 2 hr. PR: Teacher Certification in Commerce. Organization of office practice and machine classes, adjustment of course content to class and community needs, procedure for presenting subject matter, measurement and evaluation of student progress. Staff

297. Principles of Business Education. (B.E.). S. 2 hr. PR: Teacher Certification in Commerce. Practices, trends, and current issues in business education; study of placement, follow-up, and work experience programs; guidance, measurement, and standards. Staff

298. Exploratory Media in Education. I, II, S. 2 hr. PR: Upper-division or graduate standing. The use of newer media in teaching. Educational television, radio, and programmed learning will be given special emphasis. A minimum of one hour each week laboratory practice in observation and use of newer media is required. Mr. Gunselman

Graduate Division

301. Introduction to Educational Research. I, II, S. 2 hr. Required of all candidates for the administrative and supervisory programs and for Option A and B for the Master's Degree. Methods, techniques, interpretations, and reporting of research. Mr. Hofstetter and Mr. Bailey

303. History of Industrial Education. I, S. 2 hr. Development of hand work instruction in Europe and the United States. Particular emphasis is placed on modern practices in industrial education and its leaders, their viewpoints, and contributions. Mr. Brennan

304. Corrective Techniques in Reading Instruction. I, II, S. 2 hr. PR: Ed. 309 or consent. Methods and materials to help pupils with reading difficulties. Mr. Kennedy

305. Problems in Reading Instruction. I, II, S. 2 hr. PR: Ed. 304, 309. Individual and group research on selected problems in the teaching of reading. Mr. Kennedy

306. Social Studies in the Elementary School. I, II, S. 2 hr. PR: 10 hr. undergraduate credit in elementary education, or consent. Survey course in the teaching of social studies. Mr. Bell

307. Science in the Elementary School. II, S. 2 hr. PR: 10 hr. of undergraduate credit in elementary education, or consent. Material and methods of science with special consideration of human health and safety. Mr. Katz

308. The Teaching of Arithmetic. I, S. 2 hr. PR: 10 hr. of undergraduate credit in elementary education, or consent. Processes of number thinking and sequential steps of their development among pupils. Mrs. Cunningham

309. The Teaching of Reading. I, II, S. 2 hr. PR: 10 hr. of undergraduate credit in elementary education, or consent. Survey course in the teaching of reading. Mr. Kennedy

310. School Shop Planning. I, S. 2 hr. A study of considerations affecting the selection, purchase, arrangement, installation and use of equipment for different levels and types of school shops. Each student prepares a scale model of a typical shop installation. Mr. Ault

311. School Shop Safety Programs. II, S. 2 hr. Emphasis on safety measures appropriate to schools and industry, teacher liability. Students prepare a written report on an approved topic. Mr. Ault

313. Elementary-school Guidance. I, II, S. 2 hr. PR: Consent. Practical application of the principles of guidance to the elementary school. Staff

315. Current Practices in Elementary Education. I, II, S. 2 hr. PR: Consent. Critical analysis of modern techniques and practices in the elementary school. Staff

318. Planning Programs and Courses for Vocational Agriculture Departments. I, S. 2 hr. PR: Ed. 124. Gathering data, studying the farming problems of all-day students, young farmers, and adult farmers, and planning the total program for the department. Mr. Butler

319. Special Problems in Teaching General Shop. S. 3 hr. PR: Ed. 107 or equiv. Problems peculiar to teaching industrial arts in the general shop. Mr. Ault

320, 321. Special Topics in Industrial Arts. I, II, S. 2-3 hr. ea. PR: Consent. For graduate students in industrial arts. Special projects of improvement in phases needing special attention. Mr. Ault and Mr. Brennan

322. Organizing Programs of Audio-visual Instruction. I, S. 2 hr. PR: Ed. 221. An advanced course dealing with problems of planning extensive programs for using exhibits, slides, graphics, films, radio, television, etc., for instructional purposes. Mr. Gunselman

324. Administration of Individual Intelligence Tests. I, II, S. 4 hr. Techniques in administering, scoring, and interpreting individual mental ability tests. Mr. Jarecke

325. Practice in Elementary-School Supervision. I, II. 2 hr. PR: Consent. The principal enrolled in on-the-job education is given help in school organization and administration according to the needs in his own school and school system. Mr. Bell

326. Practice in Elementary-School Supervision. S. 2 hr. PR: 6 graduate hr. of elementary education, or consent. Observing and practicing major activities of the supervisor in work with pupils and teachers. To be taken late in student's candidacy. Mrs. Cunningham

327. Demonstration and Practice in the Supervision of Secondary-school Instruction. II, S. 2 hr. PR: Consent. Opportunity to observe approved pro-

cesses in classroom supervision, and to practice under guidance the art of improving classroom instruction. To be taken late in student's candidacy. Mr. Miller

328. Practice Administration in the Secondary School. I, II. 2 hr. PR: Consent The principal enrolled in on-the-job education is given help in school organization and administration according to the needs in his own school and school system. Mr. Harrah and Staff

335. The Elementary-school Curriculum. I, II, S. 2 hr. PR: 10 hr. of undergraduate credit in elementary education, or consent. Organization of content and materials of instruction of subjects through the grades. Mr. Katz

336. The Secondary-school Curriculum. I, II, S. 2 hr. PR: High-school teaching experience, or consent. Principles of and practice in curriculum construction for modern high schools. Mr. Cook

337. Problems in Secondary-school Curriculum. I, II, S. 2 hr. PR: 8 hr. graduate education, including Ed. 336. Critical study of selected problems in the secondary-school curriculum with special emphasis on research. Mr. Cook

338. Problems in the Secondary School. I, II. 2 hr. PR: Consent. Culminating course for on-the-job education of principals. Requires the principal to work through and write a project designed to improve instruction and/or administration of his school. Mr. Harrah and Staff

339. Public-school Organization and Administration. I, S. 2 hr. PR: 20 hr. of Education courses, and consent. An orientation course for present and prospective school administrators, with emphasis upon the problems which grow out of the county unit. Required as a basic course of all who specialize in educational administration. Staff

340. Public-school Finance. S. 2 hr. PR or conc: Ed. 339 and consent. Sources of school support; taxation; efficient management of school money, locally by improved budget practices and statewide by more adequate apportionment plans. To be taken late in the student's candidacy. Mr. Harrah

341. School Buildings and Equipment. I, S. 2 hr. PR or conc: Ed. 339 and consent. Philosophy, planning, and management of school plant as appropriate physical environment—the home of pupils for more efficient learning. Mr. Harrah

342. Public Education and the Law. I, II, S. 2 hr. Legal permissives and limitations involved in setting policy for, organization of, and administration of public schools. Mr. Harrah

343. School Surveys. S. 2 hr. PR or conc: Ed. 339 and consent. Development of the educational survey as an instrument for improving educational procedures. Mr. Hofstetter and Staff

344. Staff-Personnel Administration. S. 2 hr. PR or conc: Ed. 339, consent. Selection, induction, direction, evaluation, improvement, and promotion of members of the supervisory, instructional, research, clerical, and maintenance staffs. Staff

345. Seminar in School Administration. I, II, S. 6-8 hr. PR: Consent. An integrated study of the problems of the school administrator in the areas of finance, buildings and equipment, school law, school surveys, staff personnel, organization and administration. Mr. Harrah and Staff

346. Principles of Supervision. I, S. 2 hr. Basic, general principles of elementary-school, junior high-school, and senior high-school supervision. Mr. Harrah

348. Human Development and Behavior. I, II, S. 3 hr. A study of the interrelationship of physical and environmental factors as they affect the behavior of children and youth. Mr. Bailey, Mr. McAvoy, and Mr. Taylor

350. Inter-Disciplinary Seminar for School Administrators. I, II. 6 hr. PR: Consent. A study of the academic disciplines pertinent to school administration. Staff

351. Principles of Communication. I, II, S. 2 hr. Critical review of psychological implications of communication media in learning and teaching. Mr. Gunselman

353. The Secondary-school Principal. II, S. 2 hr. PR: Ed. 339 and high-school teaching experience, or consent. Open only to graduate students in Education, late in candidacy. Practicum in secondary-school administration. Mr. Miller

356. The Elementary-school Principal. S. 2 hr. PR: 6 graduate hr. of elementary education, or consent. Work of principal in management and supervision of school. To be taken late in candidacy. Mr. Bell

357. Organization and Administration of Vocational Education. S. 2 hr. PR: Ed. 339. Specific consideration of the development of practical training in agriculture, home economics, industry, and commerce, with particular reference to their place in the public-school system. Mr. Allen

360. Problem in Education. I, II, S. 1-3 hr. Total minimum, 3 hr. Research for Master's Degree in Education, option B. Staff

361. Thesis in Education. I, II, S. 1-6 hr. Total minimum, 6 hr. Research for Master's Degree in Education, option A. Staff

362. Project in Education. I, II, S. 1-6 hr. Total minimum, 6 hr. Research for the program leading to the Certificate of Advanced Study in Education. Staff

363. Dissertation. I, II, S. Research for the Doctor of Education Degree. Staff

364. Advanced Methods in Teaching Industrial Arts. II, S. 2 hr. PR: Ed. 194. Industrial arts development; discussion of effective use of instructional materials, methods, evaluation in industrial arts, and trends in industrial arts education. Mr. Brennan

365. Curriculum Construction in Industrial Arts. S. 3 hr. PR: Consent. Techniques used in building a curriculum in industrial arts. Mr. Brennan

366. Teaching the Language Arts. I, II, S. 2 hr. PR: Consent. Advanced study of the interrelationships of the language arts. Mr. Kennedy

367. Teaching the Social Studies in Secondary Schools. I, II, S. 2 hr. PR: Consent. Survey course in teaching the social studies. Mr. Cook

368. Nature and Needs of Exceptional Children. I, II, S. 3 hr. Etiology, philosophy, and education of mentally retarded, physically handicapped, and mentally advanced. Mr. Neff

369. Curriculum, Materials, and Methods for Mentally Retarded. I, II, S. 3 hr. Mr. Neff

370. Principles of Instruction. I, II, S. 2 hr. The application of philosophical and psychological foundations of instruction. Mr. Cook

371. Curriculum, Materials, and Methods for Mentally Gifted. I, II, S. 3 hr. Mr. Neff

372. Statistical Analysis in Education. I, II, S. 2 hr. PR: Ed. 271 or consent. Statistical analysis and inference. Mr. Hofstetter and Mr. Bailey

373. Basic Course in Principles and Practices of Guidance. I, II, S. 3 hr. An overview of a total guidance program. Mr. Jarecke and Staff

374. Occupational Information Techniques. II, S. 2 hr. PR: Ed. 373. Methods of gathering and disseminating occupational and educational information. Mr. Jarecke and Staff

375. Individual Inventory Techniques. II, S. 2 hr. PR: Ed. 373. Comprehensive study of all objective measures used in schools; techniques of administration, interpreting and recording results. Mr. Jarecke and Staff

376. Counseling Techniques. I, II, S. 2 hr. PR: Ed. 373, 374, 375. Study of and practices in techniques of counseling. Mr. Jarecke and Staff

377. Special Counseling Problems. I, II, S. 3 hr. PR: Ed. 373, 374, 375, 376. Work with actual problem cases according to clinical procedures. Cases to be pursued to satisfactory conclusion. Mr. Jarecke and Staff

378. Advanced Studies of Human Adjustment. II, S. 2 hr. PR: Ed. 373, 374, 375, 376. Analytical consideration of identification, causes, and development of psychological maladjustments; further study of developments in counseling and background in advance studies in guidance. Mr. Jarecke and Staff

379. Organization and Administration of Guidance Services. II, S. 2 hr. PR: Ed. 373, 374, 375, 376. Operative framework of guidance programs in terms of personnel, functions, relationships, physical facilities, instructional integration, finance standards, law and regulations. Mr. Jarecke and Staff

380, 381, 382, 383. Practice in Supervision. I, II. Credit: 2 hr. ea. PR: Assignment to actual full-time work in supervision in a school system, previous certification, and consent. Each course a continuation of the preceding. To complete the entire 8 hours, not less than two full years of field experience under control of Director of Supervised Training will be accepted. Mr. Harrah

385. History of Education in the United States. I, II, S. 2 hr. Origins, development, and significance of educational movements. Mr. Cook and Mr. Bell

395, 396, 397, 398. Practicum. I, II, S. 1-4 hr. per sem. or term—aggregating not more than 12 hr. PR: 8 graduate hr. in Education. Enrollment with permission of adviser or instructor in consultation. Special individual and group projects. Staff

To provide appropriate credits for special workshops, prolonged systematic conferences on problems and projects in Education. Credits in these projects cannot be substituted for required courses and must be done in residence. Staff

Agricultural Education: Mr. Butler
Audio-visual Education. Mr. Gunselman
Educational Measurement and Evaluation: Mr. Bailey
Educational Psychology: Mr. Bailey, Mr. Taylor, Mr. McAvoy, Mr. Neff, and Mr. Wagner.
Educational Sociology: Mr. Cook and Mr. Bell
Guidance: Mr. Jarecke
Elementary Education: Mr. Katz, Mr. Kennedy, and Mr. Bell
Home Economics Education: Miss Brown and Miss Noer
Human Growth and Development: Mr. Wagner, Mr. Taylor, and Mr. McAvoy
Industrial Arts Education: Mr. Ault and Mr. Brennan
Music Education: Mr. Brown
Philosophy of Education: Mr. Bell
School Administration: Mr. Bell, Mr. Harrah, Mr. Hofstetter, and Mr. Miller
Secondary Education: Mr. Cook, Mr. Gunselman, and Mr. Miller
Special and Adult Education: Mr. Neff
Supervision: Mr. Harrah
Teaching of Mathematics: Mrs. Cunningham and Mr. Harrah
Teaching of Science: Mr. Katz
Teaching of Social Studies: Mr. Cook and Mr. Bell
Vocational Education: Miss Brown, Miss Noer, and Mr. Butler

399. Techniques of Educational Research. II. 2 hr. PR: Ed. 271 and consent. Application of research techniques to problems in modern education; analysis and implications of results. Mr. Hofstetter

SECRETARIAL STUDIES

51. Business Communications. II. 3 hr. PR: 6 hr. English composition and ability to type. Mr. Lee

61. Typewriting. I. 2 hr. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

62. Typewriting. I, II. 2 hr. PR: Sec. Studies 61 or equiv. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

125. Shorthand. I. 4 hr. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

126. Shorthand. II. 4 hr. PR: Sec. Studies 125 or equiv. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

131. Secretarial Training and Office Practice. I. 3 hr. PR: Ability to type. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

132. Transcription. II. 2 hr. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

The College of Engineering and The School of Mines

General Information

THE COLLEGE OF ENGINEERING; THE SCHOOL OF MINES

For the purpose of administration and instruction, the College of Engineering is organized into the following departments:

Aero-Space Engineering (A.E.)
Agricultural Engineering (Ag.E.)
Chemical Engineering (Ch.E.)
Civil Engineering (C.E.)
Electrical Engineering (E.E.)
Mechanical Engineering (M.E.)
Industrial Engineering (I.E.)
Theoretical and Applied Mechanics (T.A.M.)

All of the mining and industrial extension work of the University is organized under the School of Mines. For the purpose of administration the school is divided into the following divisions:

Mining and Industrial Extension
Coal Research Bureau
Mining Engineering (E.M.)
Petroleum Engineering (Pet.E.)

All Curricula Are Accredited By The Engineer's Council For Professional Development

The Engineer's Council for Professional Development, a joint body concerned with the enhancement of the status of the engineer and the engineering profession, has been designated by its constituent bodies (American Society of Civil Engineers, American Institute of Mining, Metallurgical and Petroleum Engineers, The American Society of Mechanical Engineers, American Institute of Electrical and Electronics Engineers, The American Society for Engineering Education, American Institute of Chemical Engineers, American Institute of Aeronautics and Astronautics, National Council of State Boards of Engineering Examiners, and the Engineering Institute of Canada) as the co-ordinating agency for the accrediting of undergraduate engineering curricula in the United States.

All undergraduate curricula of the College of Engineering and of the School of Mines are fully accredited by the Engineer's Council for Professional Development.

Buildings and Equipment

The *College of Engineering* is housed in new buildings on the Evansdale Campus. The Engineering Center is located approximately a mile from the Main Campus and one-half mile from the Medical Center Campus. The main structure of the Engineering Center is a 14-floor building, featuring an 11-story tower on a 3-story base. The Center has been carefully planned to enable the College to accelerate its educational, research, and special programs—all designed to serve the State and the nation.

The *School of Mines* is housed in the Mineral Industries Building on the Main Campus.

Complete details concerning buildings, laboratories classrooms, equipment, and other general information may be found in the *Announcements* of the College of Engineering and the School of Mines.

ADMISSION

See Part II for information concerning admission to the College of Engineering and the School of Mines.

For regulations, student organizations, etc. in the College and the School, consult the *Announcements* of the College of Engineering and the School of Mines.

Requirements for Degrees

Any student, in order to be eligible to receive a Bachelor's degree in any branch of engineering for which degrees are offered, in addition to satisfying all entrance requirements, shall be required to complete satisfactorily the number of semester hours of work as specified in the curriculum of the department leading to the degree for which the student is a candidate, plus the general requirements of physical education, military or air science, and English proficiency by the University for such a degree.

A grade of "C" or better must be attained in each mathematics course before registration in a subsequent mathematics course is allowed. This rule shall not apply to Mathematics 2 and Mathematics 7.

SUBSTITUTIONS

The following substitutions are regularly allowed in addition to special substitutions listed elsewhere:

Physics 1, 2, 109, and 110 for Physics 111 and 112.

Sociol. 1, Philos. 4, Pol. Sci. 101 or equiv., or Psych. 1 for Hist. 53.

THESIS

A candidate for a baccalaureate degree in some branches of engineering may, with the consent of his major professor, prepare a thesis on some subject relating to a special branch of engineering or other department of applied science. It will be presented for approval first to the instructor under whose guidance it has been prepared, then to the chairman of the department in which the degree is to be conferred. A typewritten copy of the thesis, prepared in accordance with official specifications and signed by both the instructor in charge and the chairman of the department, must be placed in the University Library before graduation.

THE COLLEGE OF ENGINEERING CURRICULA

The several four-year curricula are set up to give, in the first two years, a well-rounded training in the basic sciences of mathematics, chemistry, and physics, and in English.

This is followed by such technical subjects as mechanics, thermodynamics, and electricity. The degree of emphasis varies somewhat with the curriculum followed. These courses bridge the gap between the pure sciences and the professional courses. In addition, courses in the humanities are given throughout the four years.

In the third and fourth years, special emphasis is placed on the professional work of the engineer. In these years a certain number of credit hours are available for electives.

The curricula are:

1. A four-year curriculum leading to the degree of Bachelor of Science in Aero-Space Engineering.
2. A four-year curriculum leading to the degree of Bachelor of Science in Agricultural Engineering.
3. A four-year curriculum leading to the degree of Bachelor of Science in Chemical Engineering.
4. A four-year curriculum leading to the degree of Bachelor of Science in Civil Engineering.
5. A four-year curriculum leading to the degree of Bachelor of Science in Electrical Engineering.

6. A four-year curriculum leading to the degree of Bachelor of Science in Industrial Engineering.

7. A four-year curriculum leading to the degree of Bachelor of Science in Mechanical Engineering.

8. Combined science and engineering curricula extending over five or more years leading to the Degree of Bachelor of Science and Bachelor of Science in Engineering.

CURRICULUM IN AERO-SPACE ENGINEERING

(E.C.P.D. ACCREDITED)

Degree: Bachelor of Science in Aero-Space Engineering

Aero-Space Engineering embraces the science and technology of all vehicles which are not bound to the earth. This includes all types of aircraft, rockets, missiles, and spacecraft, whether flight takes place in the atmosphere or beyond it.

The Aero-Space Engineering Curriculum includes the disciplines encountered in the design of all of these vehicles. In addition to aerodynamics and structures, the aero-space engineer must now be familiar with propulsion systems and control and guidance systems. The curriculum may serve as a terminal program by incorporating design oriented courses for the technical electives, or it may be used as a preparatory program for advanced study by the selection of science oriented courses for these technical electives.

Aero-Space Engineering theory and laboratory courses are scheduled in the curriculum to complement each other, so that the greatest benefit may be derived from both. The laboratory courses also provide the students with the opportunity to become familiar with modern laboratory instrumentation and research methods.

The Department of Aero-Space Engineering operates seven laboratories:

Subsonic Wind Tunnel—A 200 mph low-turbulence wind tunnel is used for research and to supplement lecture courses in theoretical and applied subsonic aerodynamics.

Supersonic Wind Tunnel—A Mach 1.50 continuous-flow indraft-type wind tunnel is used for research and instruction, particularly at the graduate level.

Aero-Space Structures Laboratory—To complement classroom work dealing with the theory of aero-space vehicle structural analysis.

Propulsion Laboratory—For undergraduate and graduate electives in this area.

Design Laboratory—For third- and fourth-year courses in detail, aerodynamic, and structural design.

Flight Test Airplane—A Cessna Model 182 airplane is used as a flying laboratory for a course in flight testing.

Flight Hangar—Hangars University-owned aircraft. Some of the airplanes are used for flight training instruction.

FIRST YEAR AERO-SPACE ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
G. 1—Engineering Lectures	Cr.	Math. 116—Calculus	4
Math. 15—Calculus	4	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Physics 11—General Physics	4
M.E. 20—Eng'g. Draw and Graphics	3	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Humanities 1	4	Humanities 2	4
Math. 117—Calculus	4	Math. 253—Adv. Applied Math.	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
Physics 102—General Physics	4	Physics 124—Intro. to Mod. Physics	4
Speech 11—Public Speaking	3	T.A.M. 102—Mech. of Materials	3
T.A.M. 101—Statics	3	T.A.M. 104—Dynamics	3
	20		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
A.E. 116—Intro. to Flight Veh.	3	A.E. 209—Fluid Mechanics	3
A.E. 201—Fluid Dynamics I	4	A.E. 210—Flight Veh. Struc. I	3
Math. elective	3	A.E. 223—Fluid Dynamics II	3
M.E. 120—Eng'g. Thermodynamics	3	E.E. 105—Electrical Fund.	4
Non-technical elective	3	English 126—Adv. Comp.	3
T.A.M. 103—Mech. of Materials	3	Non-technical elective	3
	19		19

FOURTH YEAR

First Sem.	*H*	*Second Sem.*	*Hr.*
A.E. 205—Exp. Fluid Dynamics	2	A.E. 213—Exp. Flight Veh. Struc.	1
A.E. 207—Flight Veh. Design	3	Mat.E. 250—Mat'l. Sci. Eng'g.	3
A.E. 211—Flight Veh. Struc. II	3	M.E. 230—Heat Transmission	3
A.E. 224—Flight Veh. Propulsion	3	Non-technical elective	3
E.E. 145—Electronic Fund.	4	Technical electives	6
Inspection Trip	Cr.		
Non-technical elective	3		
	18		16

Non-technical electives may be selected from the following list of subjects: Sociology, Philosophy, History, Political Science, Psychology, and Economics. The 12 semester credit hours must consist of at least three of these subjects.

Technical electives must be selected from Aero-Space Engineering courses in the 200 series or from advanced mathematics.

CURRICULUM IN AGRICULTURAL ENGINEERING

(E.C.P.D. ACCREDITED)

Degree: Bachelor of Science in Agricultural Engineering

Agricultural Engineering is the application of engineering principles to agriculture. Success in the application of engineering fundamentals to the agricultural industry requires knowledge of both the biological and physical sciences. The purpose of the course is to give the student general training in agricultural and engineering fundamentals. Considerable stress is given to basic requirements of plant and animal life which affect engineering practices, but greater emphasis is placed on a thorough knowledge of those underlying principles and methods which are the foundation of all the engineering professions.

Although the curriculum gives no opportunity for specialization, Agricultural Engineering is made up of four major fields. These are: Farm Power and Machinery, Farm Structures, Soil and Water Conservation, and Electric Power and Processing.

Students preparing to take Agricultural Engineering should present for entrance as many units as possible in mathematics, chemistry, and physics.

Some of the organizations and industries employing agricultural engineers are electric power companies and cooperatives; farm machinery manufacturers and distributors; manufacturers and distributors of building materials; oil companies; electric equipment and other suppliers of farm utilities; trust companies; farm management agencies; federal agencies such as Soil Conservation Service, U. S. Department of Agriculture, Federal Land Bank, and Indian Service; colleges and universities; Army and Navy, and foreign governments.

Opportunities for employment are numerous. At no time since the establishment of the profession has it been crowded; the outlook is good for a continuance of this situation. With agriculture becoming increasingly mechanized, the demand for agricultural engineers is increasing and should continue to increase.

FIRST YEAR AGRICULTURAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
Math. 15—Calculus	4	Math. 116—Calculus	4
M.E. 20—Eng'g. Draw. and Graphics	3	Physics 11—General Physics	4
Mil. Sci. 1 or Air Sci. 1	2	Mil. Sci. 2 or Air Sci. 2	2
Phys. Ed. 1—General Program	1	Phys. Ed. 2—General Program	1
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ag.E. 10—Intro. to Agr. Eng'g.	3	Physics 124—Intro. to Mod. Physics	4
Physics 102—General Physics	4	Math. 253—Adv. Applied Math.	3
Math. 117—Calculus	4	T.A.M. 102—Mech. of Materials	3
T.A.M. 101—Statics	3	Econ. 2—Principles	3
Econ. 1—Principles	3	M.E. 121—Thermodynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	19		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 26—Eng'g. Draw. and Graphics	2	C.E. 1—Surveying	2
E.E. 105—Electrical Fund.	4	C.E. 115—Fluid Mechanics	3
T.A.M. 103—Mech. of Materials	3	E.E. 205—Electrical Fund.	4
T.A.M. 104—Dynamics	3	M.E. 109—Mechanism	2
Humanities 1	4	Humanities 2	4
Agron. 2—Soils	3	Agr. Sci. 51—Prin. of Animal Sci. *OR* Agr. Sci. 52—Prin. of Plant Sci.	4
	19		19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ag.E. 140—Soil and Water Conserv.	3	Ag.E. 100—Farm Structures	3
Ag.E. 230—Farm Power	3	Ag.E. 110—Application of Elect.	3
M.E. 201—Des. of Mach. Members	3	Ag.E. 190—Farm Machinery	3
English 126—Adv. Comp. *OR* Speech 11—Public Speaking	3	Rural Sociol. 105—Sociol. of Rural Life	3
Agr. Econ. elective*	3-2	Electives	6
Electives	3-4		
	18		18

*Agricultural Economics electives must be chosen from Agr. Econ. 240, 261, or 271.

CURRICULUM IN CHEMICAL ENGINEERING

(E.C.P.D. ACCREDITED)

Degree: Bachelor of Science in Chemical Engineering

The standard four-year course in chemical engineering has been developed to qualify young men for positions in operation, design, construction, and management of manufacturing plants in which raw materials are subjected to chemical and physical changes to produce finished products.

This curriculum includes fundamental courses in mathematics through differential equations; inorganic, analytic, organic, and physical chemistry; physics; basic engineering principles, calculations, thermodynamics, and kinetics, design and economics, unit operations, process dynamics, and statistics. This curriculum provides the student with a broad foundation in the fundamental principles of those subjects which wide experience has shown to be essential for successful careers in the chemical engineering profession; or as engineers in any industry involving chemical processing.

To complete the requirements for the Bachelor of Science in Chemical Engineering degree in four years, students should follow the curriculum as outlined, although it is definitely advisable to take Organic Chemistry 233 and 238 in the Summer Session before the third year.

Students preparing to take Chemical Engineering should present for entrance as many units as possible in mathematics, chemistry, and physics. It is desirable, also, to have units in German, French, or Russian. While certain basic courses in English, economics, and public speaking are required in the regular curriculum, a student will obtain a broader education in economics, history, language, science, and engineering by taking the combined Bachelor of Science and Chemcial Engineering courses. By a careful selection of electives, both degrees may be earned in five years.

In recognition of the increasing tendency on the part of industry to promote engineers to administrative and executive positions, the curriculum has been broadened to include more required work in the field of humanities. Additional elective courses may be selected from the humanities and business administration courses.

In addition to the demand for students trained in chemical engineering, there is considerable demand throughout the State for men trained in Materials Science Engineering. These fields are closely allied with chemical engineering. A basic course in Materials Science is recommended for all students seeking a degree in chemical engineering. In addition, students may elect courses in this area in their undergraduate and especially in their graduate programs. These courses are integrated with the chemical engineering courses, making use of many of the fundamental concepts common to these categories.

The department, along with the other departments of the College of Engineering and the School of Mines, is a part of the Engineering Experiment Station. The combined facilities of the department and the station are available for investigation and research. The greater number of projects are so selected that graduate students, and to some extent undergraduate students, participate in the program. The work of the Engineering Experiment Station thus is part of the educational program.

FIRST YEAR CHEMICAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
Chem. 3—Inorganic Chem.	5	Chem. 4—Inorganic Chem.	5
Math. 15—Calculus	4	Math. 116—Calculus	4
Phys. Ed. 1—General Program	1	Physics 11—General Physics	4
G. 1—Engineering Lectures	Cr.	Mil. Sci. 2 or Air Sci. 2	2
Math. 14—Elementary Analysis	2	Phys. Ed. 2—General Program	1
Mil. Sci. 1 or Air Sci. 1	2		
	17		19

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 117—Calculus	4	Math. 253—Adv. Applied Math.	3
Chem. 260—Physical Chem.	3	Chem. 261—Physical Chem.	3
Humanities 1	4	Humanities 2	4
Physics 102—General Physics	4	Physics 125—Intro. to Mod. Physics	3
T.A.M. 101—Statics	3	T.A.M. 104—Dynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	20		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Hum-Social (elective)	3	Math. elective	3
Chem. 233—Organic Chem.	4	Chem. 238—Organic Chem.	4
Ch.E. 201—Ch.E. Fund.	3	Ch.E. 202—Ch.E. Fund.	3
Ch.E. 242—Thermo. and Kinetics	3	Ch.E. 206—Ch.E. Oper.	3
Ch.E. 248—Stat. Des. of Experiments	2	Ch.E. 243—Thermo. and Kinetics	3
Physics 126—Intro. to Mod. Physics	3	Hum-Social (elective)	3
	18		19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Hum-Social (elective)	3	E.E. 105—Electrical Fund.	4
T.A.M. 102—Mech. of Materials	3	Hum-Social (elective)	3
Ch.E. 208—Ch.E. Oper.	3	Speech 11—Public Speaking	3
Ch.E. 272—Design	2	Ch.E. 211—Ch.E. Lab.	2
Ch.E. 283—Proc. Dynamics	3	Ch.E. 273—Design	2
English 126—Adv. Comp.	3	Technical elective	3
Technical elective	3		
	20		17

Materials Science Engineering

H. V. Fairbanks and P. R. Jones, *Program Co-directors*

Admission. The graduate program in Materials Science Engineering leading to the degree of Master of Science in Engineering is open to any graduate of an accredited engineering curriculum, and is administered by the Department of Chemical Engineering.

Courses. In general, the courses required in this program are Physics 270 and 271, Ch.E. 248, and Mat.E. 250, 255, 260, 265, 269 and 397. A satisfactory thesis is required. It is suggested that electives be chosen from the group Mat.E. 254, 261, 262, 263, 350, 351, 352, 360, 361, Ch.E. 341, Nuc.E. 392 and T.A.M. 200, 203, and 310. Other elective courses may be used by permission of the program co-directors.

Facilities. The specialized facilities for Materials Science Engineering include well-equipped laboratories for the complete examination and testing of materials including ceramics, metals, alloys and synthetics, and for research in these areas. In addition, the laboratory facilities of other departments may be utilized as needed.

Nuclear Engineering

J. A. Kent, *Program Director*

Admission. The program for the degree of Master of Sciences in Nuclear Engineering is administered by the Department of Chemical Engineering. The work offered in the department has been approved by the Atomic Energy Commission for recipients of Atomic Energy Commission Special Fellowships in Nuclear Energy Technology.

Before being admitted to candidacy for the degree of Master of Science in Nuclear Engineering, the prospective student must be admitted to the Graduate School. Applicants with the degree of Bachelor of Science in one of the major branches of engineering from an accredited engineering department will be admitted, provided they have had a course in differential equations.

Courses. A fairly rigid curriculum is followed for the M.S.N.E. Degree. This is necessary in view of the fact that students of diverse background may be admitted for this degree.

The required courses for the degree are: Physics 225, 226, 287, 288; Nuc.E. 390, 391, 392, 393; and a research thesis. In addition, six hours of related elective courses are required. Approved electives include Math. 357 and 358; Ch.E. 306 and 344. Other elective courses may be taken, subject to the approval of the candidate's adviser.

Facilities. The specialized facilities for nuclear engineering include a swimming pool reactor, electronic nuclear reactor simulator, graphic sigma pile, a 500-curie radiation facility, and a modern radioisotopes laboratory for instruction and research. The various departments in the College of Engineering are also well equipped for a variety of research projects which are applicable in the field of nuclear technology.

CURRICULUM IN CIVIL ENGINEERING

(E.C.P.D. ACCREDITED)

Degree: Bachelor of Science in Civil Engineering

The civil engineering curriculum has been planned to give a broad coverage of those general and scientific subjects that form the foundation of all engineering and special training in the civil engineering field. General subjects are included in all semesters of the four-year program. These are intended to improve and enrich the student's understanding of man's relation to man and they have been classified as communications, humanities, and social consciousness courses. In addition to drawing, physics, and mathematics, which form the roots of any engineering course, the student investigates such fields as chemistry and geology which give a breadth of scientific training.

A comprehensive study of earth measurements and survey engineering is scheduled for the summer following the first year. Training at the professional level in photogrammetry and geodesy may be elected during the fourth year to round out this work.

Courses in theoretical and applied mechanics, thermodynamics, and electrical engineering furnish breadth of training in engineering subjects and depth of training comes from professional work in transportation, structural and sanitary engineering, and soil mechanics, any of which may be the specialty of the civil engineer.

The civil engineering professional field is too broad to be covered thoroughly in a four-year course. For this reason, primary emphasis is placed on engineering fundamentals. A degree of professional specialization is still possible, however. The student, during his last year, may select specialized courses in the fields of transportation, sanitary engineering, structural engineering, or soil mechanics. If he prefers, he may elect to prepare a thesis or may elect upper-dvision courses from other engineering departments.

The State Road Commission of West Virginia and the Department of Civil Engineering offer a cooperative program in which the student divides his time between formal education and practical experience. One or more semesters are spent each year pursuing the regular Civil Engineering curriculum in school and for the remainder of the time the trainee is employed by the State Road Commission, where all possible advantage is taken of the engineering theory which the student has studied. The student's pace through the curriculum is determined primarily by his financial position. Upon successful completion of the program, the regular B.S.C.E. degree is granted and the trainee is offered an engineering position with the S.R.C.

FIRST YEAR CIVIL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
G. 1—Engineering Lectures	Cr.	Math. 116—Calculus	4
Math. 15—Calculus	4	Physics 11—General Physics	4
M.E. 20—Graphic Science I	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		18

SUMMER

C.E. 102—Survey Engineering (five weeks) 6

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Humanities 1	4	Humanities 2	4
Math. 117—Calculus	4	Math. 240—Diff. Equations *OR*	
T.A.M. 101—Statics	3	Math. 253—Adv. Appl. Math.	3
Physics 102—General Physics	4	T.A.M. 102—Mech. of Materials	3
Mil. Sci. 3 or Air Sci. 3	2	T.A.M. 104—Dynamics	3
		Physics 124—Modern Physics	4
		Mil. Sci. 4 or Air Sci. 4	2
	17		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
C.E. 115—Fluid Mechanics	3	C.E. 146—Sanitary Eng'g. I	3
C.E. 131—Highway Eng'g.	4	C.E. 160—Structural Analysis I	5
Geol. 1—General Geology	3	C.E. 280—Soil Mechanics	3
M.E. 121—Thermodynamics	3	E.E. 105—Electrical Fund.	4
T.A.M. 103—Mech. of Materials	3	Non-technical elective	3
Non-technical elective	3		
	19		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
C.E. 147—Sanitary Eng'g. II	3	C.E. 221—Eng'g. Hydraulics	3
C.E. 260—Struct. Analysis II	3	C.E. 271—Struct. Design II	3
C.E. 270—Struct. Design I	3	English 126—Adv. Composition *OR*	
Mat.E. 250—Mat'ls. Sci. Eng'g.	3	Speech 11—Public Speaking	3
Non-technical elective	3	Non-technical elective	3
Technical elective	3	Science or Eng'g. Sci. elective	3
		Technical elective	3
	18		18

Six hours of a modern foreign language may be taken in place of English 126 or Speech 11. English 126 will be required if the average grade in English 1 and 2 is "C" or less.

Technical electives must include at least one course in Civil Engineering.

Non-technical electives must be selected from the areas of social sciences and humanities.

CURRICULUM IN ELECTRICAL ENGINEERING

(E.C.P.D. ACCREDITED)

Degree: Bachelor of Science in Electrical Engineering

The course in electrical engineering has been developed for the purpose of giving the student who completes the course general training in engineering fundamentals and broad training in the field of electrical engineering. Special training in the electrical power field or the communications field is available as electives in the senior year.

In the first two years of electrical engineering, the work is limited mostly to those subjects which are essential as preparatory courses for the more technical courses in the third and fourth years.

During the third year, fundamental courses in electrical engineering are introduced. An additional mathematics course of special importance to electrical engineering is included, as well as other fundamental engineering subjects.

In the fourth year the curriculum is made up almost entirely of courses in electrical engineering. During the year, the student elects a group of courses pertaining to the field of communications or to the field of electric power.

It will be observed that for many of the courses scheduled in this curriculum, the work of the classroom is supplemented by concurrent work in the laboratory or drafting room. By means of experimental work in the laboratory, followed with well-written reports and problems in the design of electrical apparatus, the student acquires a clearer conception of the facts and principles discussed in the classroom and also a working knowledge of the subject matter. All of this is essential if he is to become a successful electrical engineer.

FIRST YEAR ELECTRICAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
G. 1—Engineering Lectures	0	Math. 116—Calculus	4
Math. 15—Calculus	4	Physics 11—General Physics	4
M.E. 20—Eng'g. Draw. & Graphics	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Humanities 1	4	E.E. 25—Electrical Circuits	4
Math. 117—Calculus	4	Humanities 2	4
Physics 102—General Physics	4	Math. 253—Adv. Applied Math.	3
T.A.M. 101—Statics	3	Speech 11—Public Speaking	3
Mil. Sci. 3 or Air Sci. 3	2	T.A.M. 104—Dynamics	3
		Mil. Sci. 4 or Air Sci. 4	2
	17		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Econ. 1—Principles	3	Econ. 2—Principles	3
E.E. 125—Electrical Circuits	4	E.E. 152—Electronics	4
E.E. 126—Electric & Mag. Fields	3	E.E. 225—Electric Circuits	4
English 126—Adv. Comp.	3	E.E. 226—Electromagnetic Fields	3
Physics 125—Intro. to Mod. Physics	3	Physics 126—Intro. to Mod. Physics	3
T.A.M. 102—Mech. of Materials	3		
	19		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
E.E. 200—Seminar	0	C.E. 115—Fluid Mechanics	3
E.E. 232—Electromechanical Dev.	4	E.E. 233—Electromechanical Dev.	4
E.E. 252—Electronics	3	E.E. 262—Electronics & Comm. Lab.	2
Math. elective	3	E.E. 270—Eng'g. Analy. & Design	3
M.E. 121—Thermodynamics of Eng'g.	3	Non-technical electives	3
Non-technical electives	3	Technical electives	3
Technical electives	3		
	19		18

Electives

Non-technical electives shall be selected from the following subjects: Economics, a Language (6 hr. minimum), History, Humanities, Philosophy, Political Science, Psychology, Sociology.

Technical electives shall be selected from the following: Advanced Mathematics, Physics, or an engineering course in the 200 series.

CURRICULUM IN INDUSTRIAL ENGINEERING

(E.C.P.D. ACCREDITED)

Degree: Bachelor of Science in Industrial Engineering

Industrial Engineering is a relatively new branch of engineering. The industrial engineer must combine his knowledge of engineering principles with everyday manufacturing operations in order that the product be produced in sufficient quantities at minimum cost. The field of the industrial engineer is that of the process, production, and cost expert engaged in planning, organizing, improving, managing, and operating the various procedures in producing all kinds of manufactured products.

The purpose of the curriculum in industrial engineering is to provide training for those students who are interested in the managerial and technical activities of the engineering field. Industrial engineering is, basically, engineering with its foundation in mathematics and the sciences, with emphasis upon the human factors and the economic aspects which are essential in engineering work.

There are many new problems challenging industry. Industrial engineers are being called upon more and more to answer this challenge. Their job is to coordinate man, machine, and method into a smooth-running organization.

The first and second years are devoted to basic courses in English, mathematics, chemistry, physics, statics, mechanics of materials, graphics, and manufacturing processes which are essential to the more technical courses which follow in the third and fourth years.

Industrial engineering includes motion and time study analysis for work simplification and standardization, control of quality, control of quantity through use of production control techniques, and control of labor costs through use of such management activities as job evaluation and wage incentives.

The laboratories provide the student with practice in the various phases of industrial engineering. Facilities are also available for research and development of methods and procedures for manufacture and control.

Besides giving the engineering fundamentals, industrial engineering provides for basic course work in the fields of mechanical and electrical engineering. The studies provide for intensive training in the various branches of industrial engineering. The specialization courses starting in the junior year are planned for progressive instruction in the principles and techniques of industrial engineering as practiced in industry.

Statistics has been increasing steadily as a tool in industrial engineering. One of its greatest contributions in recent years has been in the control of quality of manufactured products by statistical method. Recent additions to the curriculum prepare students for more advanced statistical analysis, as may be applied to production and costs, as well as research. Among the newest courses, which advanced and graduate students may choose to investigate, are the concepts and theories of Operations Research, such as linear programming, queueing, theory of games, and statistical inventory control.

West Virginia has many types of industries in which industrial engineers may be profitably employed. Greater efficiency in operations as well as the expansion of industrial activities in the State will maintain the need for graduates in this ever-developing field.

FIRST YEAR INDUSTRIAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2— Inorganic Chem.	4
English 1—Comp. & Rhet.	3	English 2—Comp. and Rhet.	3
G. 1—Engineering Lectures	Cr.	Math. 116—Calculus	4
M.E. 20—Eng'g. Draw. and Graphics	3	Physics 11—General Physics	4
Math. 15—Calculus	4	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Econ. 1—Principles	3	Econ. 2—Principles	3
Humanities 1	4	Humanities 2	4
Math. 117—Calculus	4	Math. 253—Adv. Math.	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
Physics 102—General Physics	4	Physics 124—Modern Physics	4
T.A.M. 101—Statics	3	T.A.M. 104—Dynamics	3
	20		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
E.E. 105—Electrical Fund.	4	E.E. 205—Electrical Fund.	4
I.E. 100—Mfg. Processes	3	I.E. 110—Tool Design	3
I.E. 131—Fund. of I.E.	2	I.E. 140—Motion & Time Study	3
I.E. 180—Intro. to Digital Comp.	3	I.E. 151—Acct. for Engr's.	3
I.E. 244—Eng'g. of Statistics	3	I.E. 214—Adv. Anal. Eng'g. Data	3
T.A.M. 102—Mech. of Materials I	3	M.E. 121—Thermodynamics	3
	18		19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
C.E. 115—Fluid Mechanics	3	I.E. 294—Std. Mfg. Costs	3
I.E. 142—Prod. Control	3	Psych. 115—Psychology of Ind.	3
I.E. 254—Intro. Oper. Research	3	*Speech 11—Public Speaking	3
I.E. 287—Eng'g. Economy	3	**Electives—I.E. Technical	6
I.E. 290—Ind. Stat.	2	***Elective—Non-Technical	3
Mat.E. 250—Mat. Sci. Eng'g.	3		
	17		18

*Either Speech 11 or English 126 may be taken.

**Elective (I.E. Technical) must be taken from any of the Industrial Engineering courses listed in the Courses of Instruction.

***Elective (no designation) may be selected from the recommended elective list, or an engineering course in the 200 series, or from psychology, philosophy, economics, sociology, or foreign languages.

RECOMMENDED ELECTIVES

E.M. 215—Ind. Saf. Eng'g.	2	I.E. 211—Ind. Eng'g. Prob.	3
G. 190—Law for Engineers	3	I.E. 215—Stat. Decision Making	3
I.E. 200—Metal Cut. Theory & Prac.	3	M.E. 250—Heat, Vent., & Air Contr.	3

CURRICULUM IN MECHANICAL ENGINEERING

(E.C.P.D. ACCREDITED)

Degree: Bachelor of Science in Mechanical Engineering

Mechanical engineers, who work in a wide variety of industries, make vital contributions to power generation, transportation, manufacturing, nuclear-energy developments, space exploration and other activities. For example, many of the engineers in the satellite and space programs are mechanical engineers working on re-entry problems, nose cones, rocket motors, guidance systems, and other associated problems.

Large numbers of mechanical engineers are employed in the following industries: electrical power, electronics, automotive, chemical, petroleum production and refining, and many others.

The above list of industries could be extended to include virtually every industry; thus it is extremely important that mechanical engineering students are trained to deal effectively with general engineering problems. Adequate courses in the

humanities, social consciousness, and communications are provided throughout the four years, to insure the development of a well-rounded individual who is capable of assuming a responsible position in society.

Basic engineering drawing courses provide a contact with engineering work during the first year and are given so as to thoroughly familiarize the student with graphical communication. Theoretical and laboratory instruction are provided to give a fundamental knowledge of machine tools and production methods.

Courses in mechanisms, statics, mechanics of materials, kinetics, dynamics, machine design, thermodynamics, and other technical courses provide an opportunity to apply the basic fundamental mathematics, physics, and chemistry. A sufficient amount of electrical engineering is given in the third and fourth years to enable the student to handle engineering operations involving electrical problems. The course in thermodynamics provides a fundamental background in heat power.

Well-equipped laboratories are provided to supplement classroom instruction and to furnish a means of teaching experimental methods. The student is provided with the opportunity to observe phenomena and seek explanations, to test theories, to note contradictions, and interpret results. An opportunity is also provided for the student to become familiar with the test codes of recognized national societies.

The curriculum is highly technical, yet sufficiently broad to meet the requirements of industry and society. The young graduate ordinarily enters a manufacturing or operating organization, where opportunity is provided for his development in research, design, operation, sales, or administration, depending upon his interests and his aptitudes.

A student who desires a broader training in the liberal arts than is provided in the regular four-year curriculum may take a combined bachelor of science and mechanical engineering course. By a careful selection of electives and proper sequence of registration, both degrees may be earned in five years.

FIRST YEAR MECHANICAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 15—Calculus	4	Math. 116—Calculus	4
Chem. 1—General Chem.	4	Chem. 2—General Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
M.E. 20—Graphics	3	Physics 11—General Physics	4
Phys. Ed. 1—General Program	1	Phys. Ed. 2—General Program	1
Mil. Sci. 1 or Air Sci. 1	2	Mil. Sci. 2 or Air Sci. 2	2
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 117—Calculus	4	Math. 253—Adv. Math.	3
Physics 102—General Physics	4	Humanities 2	4
T.A.M. 101—Statics	3	T.A.M. 102—Mech. of Materials	3
Humanities 1	4	T.A.M. 104—Dynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Physics 124—Intro. to Mod. Physics	4
		Mil. Sci. 4 or Air Sci. 4	2
	17		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
T.A.M. 103—Mech. of Materials	3	E.E. 205—Electrical Fund.	4
I.E. 100—Mfg. Processes	3	C.E. 115—Fluid Mechanics	3
E.E. 105—Electrical Fund.	4	M.E. 112—Dynamics of Mach.	3
M.E. 109—Mechanisms	2	M.E. 125—Thermodynamics	3
M.E. 120—Thermodynamics	3	M.E. 126—Graphics II	2
English 126—Technical Writing *OR* Speech 11—Public Speaking	3	M.E. 132—Mech. Lab.	2
	18		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 201—Design of Mach. Members	3	M.E. 203—Machine Design	3
M.E. 228—Mech. Lab.	1	I.E. 244—Statistics *OR*	
M.E. 230—Heat Transmission	3	I.E. 287—Eng'g. Economy	3
Mat.E. 250—Materials Science	3	Technical electives	6
Technical elective	3	Non-technical electives	6
Non-technical electives	6		
	19		18

NOTE: Six hours of technical electives must be taken from Mechanical Engineering courses.

The School of Mines

CURRICULA IN THE SCHOOL OF MINES

(E.C.P.D. ACCREDITED)

The following engineering curricula are offered in the School of Mines.

1. A four-year curriculum leading to the degree Bachelor of Science in Engineering of Mines.

2. A four-year curriculum leading to the degree Bachelor of Science in Petroleum Engineering.

3. A combined science and engineering curricula leading to the degree of Bachelor of Science and Bachelor of Science in Engineering of Mines or Bachelor of Science in Petroleum Engineering.

In the four-year curricula the first two years of instruction are alike. During this period the student is given a thorough grounding in mathematics, physics, chemistry, English composition, and geology, as well as an introduction to history and economics. During the third and fourth years the student is given instruction in the engineering sciences as well as in the professional subjects pertaining to mining engineering and petroleum and natural gas engineering. Also, studies in the humanities are continued with the student being permitted to elect a reasonable proportion of the subjects to be studied.

CURRICULUM IN ENGINEERING OF MINES

Degree: Bachelor of Science in Engineering of Mines

Mining Engineering deals with discovering, extracting, beneficiating, marketing, and utilizing minerals from the earth. The role of the mining engineer is quite diversified and there are opportunities for technical specialization in prospecting, development, production, beneficiation, utilization, and marketing. Therefore, the mining engineer must be well trained in the fields of mining and geology and also in the principles of civil, electrical, and mechanical engineering as applied to the mining industry. With the present trend toward the use of engineers in industrial management and administrative positions, the mining engineer's training must also include economics, business, personnel management, and the various humanities.

In this curriculum professional study includes geology and the engineering principles of blasting, materials handling, transportation, hoisting, water control, surface and underground systems of mining, roof control, ventilation, mineral preparation, and plant design. Special consideration is given to the application of mining machinery with particular attention to power transmission and electric and hydraulic control systems.

Special courses in the design of surface and underground mining installations give the student opportunity for using the engineering principles developed in preceding phases of the course as well as for specialization. The student receives an introduction to the management and social aspects through courses devoted to economic, social, governmental, labor, financial, and safety problems incident to the operation of a mining enterprise.

In the fourth year the student may specialize in coal mining, ore mining, or other phases of mining engineering by proper selection of design problems and electives. He will be assigned an adviser who will assist him in this phase of the program.

Local coal fields, mines, and preparation plants are used extensively for experimental, instructional, and field work.

FIRST YEAR ENGINEERING OF MINES

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
E.M. 1—Freshman Orientation	0	Math. 116—Calculus	4
Math. 15—Calculus	4	Geol. 1—Physical Geology	3
Hist. 1—World Civilization	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		
*Math. 14—Introductory Math.	2		
	19		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Physics 11—General Physics	4	Physics 102—General Physics	4
Math. 117—Calculus	4	Math. 253—Adv. Appl. Math.	3
Hist. 2—World Civilization	3	T.A.M. 101—Statics	3
E.M. 106—Mineralogy	2	Econ. 2—Principles	3
Econ. 1—Principles	3	Chem. 163—Physical Chemistry	4
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	18		19

SUMMER

E.M. 102—Mine Surveying (5 weeks) 5

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 121—Thermo. of Eng'g.	3	E.M. 209—Mineral Prep.	2
Physics 124—Intro to Mod. Physics	4	E.M. 210—Mineral Prep. Lab.	1
English 127—Intro. to Lit.	3	E.E. 105—Electrical Fund.	4
C.E. 115—Fluid Mechanics	3	English 128—Intro. to Lit.	3
T.A.M. 104—Dynamics	3	T.A.M. 102—Strength of Materials	3
E.M. 108—Fund. of Mining	4	I.E. 244—Eng'g. Statistics	3
		**Non-technical elective	3
	20		19

*Only if necessary for entrance to Math. 15.

**Non-technical electives must be selected from the following fields: Art, Classics, English and American Literature, Humanities, Music, Philosophy, Economics, History, Psychology, Political Science, Sociology.

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 230—Heat Transfer	3	E.M. 112—Mine Plant Design	3
E.E. 205—Electrical Fund.	4	E.M. 220—Mine Design	3
E.M. 212—Advanced Mining	3	E.M. 222—Mine Equip. and Mach.	3
E.M. 213—Mine Ventilation	3	E.M. 223—Mine Management	3
E.M. 241—Mechanics of Ground Control in Mines	3	Mat.E. 250—Elements, Mat. Sci. Eng'g.	3
***Technical elective	3	G. 100—Inspection Trip	0
		**Non-technical elective	3
	19		18

***Students wishing to specialize in coal mining may do so by electing E.M. 217, Coal Preparation, and selecting a coal mining design problem in E.M. 220, Mine Design.

Students wishing to specialize in ore mining may do so by electing E.M. 218, Advanced Mineral Preparation, and electing an ore mining design problem in E.M. 220, Mine Design.

Recommended Technical Electives

E.M. 229—Adv. Mine Equip. Appl.	3	Econ. 115—Labor Problems	3
E.M. 208—Geol. Surveying	1	E.M. 217—Coal Preparation	3
E.M. 214—Mine Val., Cost Control and Economics	3	E.M. 215—Indus. Safety Engr.	2
E.M. 218—Adv. Mineral Prep.	3	C.E. 275—Reinforced Concrete	3
E.M. 219—Adv. Mining Methods for Vein Deposits	3	E.M. 234—Applied Geophysics	3
E.M. 224—Mining Eng'g. Problems 1 to	3	T.A.M. 103—Mech. of Materials	3
E.M. 227—Mine Power Application	2	I.E. 140—Motion & Time Study	3
E.M. 228—Mine Equip. & Machine Controls	3	Geol. 151—Struct. Geology	3
E.M. 230—Elements of Geop. Prosp.	3	Geol. 275—Coal Geology	4
		Manag. 217—Personnel Management	3
		G. 190—Law for Engineers	3

CURRICULUM IN PETROLEUM ENGINEERING

Degree: Bachelor of Science in Petroleum Engineering

Petroleum engineering deals with the discovery, production and transportation of oil and natural gas. Consequently, the petroleum engineer must be soundly grounded in the principles of geology as related to the occurrence, discovery, and production of natural gas and petroleum. In this curriculum this training is obtained by the study of geology as well as by the geological principles developed in the courses relating to oil field development and production. In addition, the petroleum engineer must be well grounded in the principles of oil and gas production as well as in the technology of transportation. This training may be obtained in the several courses pertaining to petroleum technology and in gas measurement, regulation and distribution as well as the courses given in the engineering and basic sciences and mathematics. Today, there is a strong trend towards employing the petroleum engineer as supervisors, managers, and executives. Education for this aspect of his career is provided by the courses in property evaluation, oil and gas law, as well as in economics and the humanities. In the senior year electives are provided by use of which the student may obtain additional training in geology or geophysics or geological surveying or in management or supervisory skills or in some special phase of petroleum and natural gas technology. Assistance in this phase of the program will be given by an adviser assigned to the student for this purpose.

The School is particularly fortunate in that West Virginia is a petroleum and natural gas producing state and as a result local production and gas storage fields, secondary recovery projects, compressor stations and refineries provide excellent opportunity for field study of petroleum engineering problems, techniques, and methods. The petroleum laboratories of the School are well equipped for laboratory study of gas measurement apparatus, for core analysis as well as for the study of drilling muds and for study of and experiments on drilling and pumping machinery.

FIRST YEAR PETROLEUM ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
E.M. 1—Freshman Orientation	0	Math. 116—Calculus	4
Math. 15—Calculus	4	Geol. 1—Physical Geology	3
Hist. 1—World Civilization	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		
*Math. 14—Intro. Math.	2		
	19		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Physics 11—General Physics	4	Physics 102—General Physics	4
Math. 117—Calculus	4	Math. 253—Adv. Applied Math.	3
Hist. 2—World Civilization	3	T.A.M. 101—Statics	3
E.M. 106—Mineralogy	2	Chem. 163—Physical Chem.	4
Econ. 1—Principles	3	Econ. 2—Principles	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	18		19

SUMMER

E.M. 102—Mine Surveying (5 weeks) 5

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
T.A.M. 104—Dynamics	3	Pet.E. 104—Oil & Gas Prod.	3
Physics 124—Modern Physics	4	T.A.M. 102—Mech. of Materials	3
English 127—Intro. to Lit.	3	English 128—Intro. to Lit.	3
E.E. 105—Electrical Fund.	4	M.E. 121—Thermodynamics	3
C.E. 115—Fluid Mechanics	3	E.E. 205—Electrical Fund.	4
Pet.E. 101—Oil Field Dev.	3	Geol. 3—Historical Geology	3
	20		19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Mat.E. 250—Elements of Mat. Sci. Eng'g.	3	Pet.E. 203—Petrol. Prop. Val.	2
Pet.E. 237—Comp. & Prop. of Oil Well Drilling Fluids	3	Pet.E. 205—Gas Measurement Eng'g.	2
M.E. 230—Heat Transfer	3	Pet.E. 216—Petrol. Eng'g. Des.	3
Pet.E. 236—Mech. of Hydrocarbon Fluids	3	Pet.E. 235—Fund. of Well Logging	3
Pet.E. 232—Pet. Reservoir Eng'g.	3	Pet.E. 239—Adv. Reservoir Eng'g.	3
**Non-technical elective	3	G. 100—Inspection Trip	0
		Technical elective	3
		**Non-technical elective	3
	18		19

NOTE: See page 301 for a list of Recommended Technical Electives.

*Only if necessary for entrance to Math. 15.

**Non-technical electives must be selected from the following fields: Art, Classics, English and American Literature, Humanities, Music, Philosophy, Economics, History, Psychology, Political Science, and Sociology.

Recommended Technical Electives

E.M. 230—Elem. of Geop. Prosp.	3	Geol. 161—Field Geology	3
E.M. 231—Geop. Prosp. Lab.	1	Geol. 170—Nat. Res. & Geol. of West Virginia	2 or 3
E.M. 214—Mine Val., Cost Control and Economics	3	Ch.E. 286—Petroleum Tech.	2
E.M. 215—Ind. Safety Eng'g.	2	Pet.E. 238—Oil & Gas Law	2
Geol. 2—Phys. Geol. Lab.	1	T.A.M. 103—Mech. of Materials	3
Geol. 4—Hist. Geol. Lab.	1	E.M. 234—Applied Geophysics	3
E.M. 207—Introductory Seismology	1	E.M. 208—Geological Surveying	1
I.E. 244—Engineering Statistics	3	Geol. 272—Petroleum Geology	3

FIVE-YEAR CURRICULA

Degree: Bachelor of Science in conjunction with a degree in engineering.

These curricula are designed to meet the needs of students who wish to receive a broader training than is provided in the four-year program. They also enable the student to take lighter schedules than are required in the four-year curricula.

(A) Requirements for the degree of Bachelor of Science, to be conferred at the end of the fourth year, where the student's grade-point average is 2.5 or over, or at the time of the conferring of the engineering degree where the grade-point average is below 2.5.

(1) The requirements of the first three years of any four-year engineering curriculum.

(2) a. Twelve semester hours of one foreign language, where no secondary school entrance credits have been allowed, or
b. Six semester hours at intermediate level, where two units of entrance credits have been allowed in the same foreign language.

(3) Electives from the following groups, amounting to six semester hours where (2a) applies and twelve semester hours where (2b) applies.
a. Not more than three hours each of English, history, and speech.
b. Not more than six hours each in any one or more than the following groups: foreign language (other than specified above); journalism; commerce, political science; and philosophy, psychology, and sociology.

(B) Requirements for the Bachelor of Science degree in engineering or mining or petroleum engineering, to be conferred on completion of the work of the fifth year.

GRADUATE CURRICULA

Graduate work leading to the degree of Master of Science in Engineering is offered in all departments. In certain departments courses leading to the degree of Doctor of Philosophy are also offered. The student who plans to pursue graduate work is directed to the courses as outlined in the *Announcements* of the Graduate School. Seniors within ten semester hours of graduation may petition the Dean of the Graduate School and receive credit towards a Master's degree for work taken beyond the requirements for a Bachelor's degree.

SPECIAL ENGINEERING CURRICULA

1. *Elective Groups for Students in Other Colleges.* Candidates for degrees other than engineering degrees, and special students in any department of the University, are permitted to elect subjects in the College of Engineering and the School of Mines, provided, in each case, they have had the subjects specified as prerequisites. Students who wish to take a general classical or scientific course of study before taking the engineering curriculum are advised to carry their mathematics as far as called for by the engineering curriculum, and to take some elective work in the College of Engineering or the School of Mines.

2. *Partial Curriculum.* Students who have not the time or are otherwise unable to take the full curriculum will be allowed to take a special or partial curriculum, consisting of such studies as they are prepared to take, provided such curriculum shall have been approved by the adviser.

PROFESSIONAL DEGREES

The University confers the following professional degrees: Aero-Space Engineer (A.E.), Chemical Engineer (Ch.E.), Civil Engineer (C.E.), Electrical Engineer (E.E.), Mechanical Engineer (M.E.), Engineer of Mines (E.M.), and Petroleum Engineer (Pet.E.).

The professional degree is conferred upon graduates of the College of Engineering and of the School of Mines of West Virginia University on the basis of practical experience and study in absentia, the presentation of a thesis, and oral final examination.

To be eligible, a candidate for a professional degree must have been in active practice of his profession for at least five years since receiving his first degree, and must have been in responsible charge of important work at least two years.

Application for registration as a candidate for a professional degree should be made not later than October 1 in the academic year in which the degree is desired. Detailed regulations and registration blanks may be obtained from the Dean of the College of Engineering or from the Dean of the School of Mines.

Courses of Instruction*

AERO-SPACE ENGINEERING

Professors SELTZER and SQUIRE; Associate Professor ULRICH; Instructor WALTERS.

Undergraduate Division

A.E.

116. INTRODUCTION TO FLIGHT VEHICLES. 3 hr. PR: M.E. 20, Physics 102, and/or conc: Math. 253. Discussion of flight vehicles of the past, present, and future. An introduction to the methods of graphical communication, production, and fabrication used in the aero-space industry. Solution of aero-space problems by graphical, digital, and analog methods. 2 hr. lec., 3 hr. lab.

201. FLUID DYNAMICS I. 4 hr. PR: Math. 253; or conc: M.E. 120, A.E. 116. Standard atmosphere, thermodynamics of fluid flow, types of fluid motion, airfoils, wings, drag, heat transfer through boundary layers, introduction to flight vehicle performance. 4 hr. lec.

202. FLUID DYNAMICS III. 3 hr. PR: Math. 253, A.E. 201. Steady flow of incompressible and compressible fluids. Stream functions and potential theory of two dimensional ideal flows. Flow equations in vector notation. Conformal transformations and airfoil development. Viscous and three dimensional effects on ideal flows. Two and three dimensional vortex flows. 3 hr. lec.

203. APPLIED AERODYNAMICS. 3 hr. PR: A.E. 209. Chordwise and spanwise airload distribution for plain wings, wings with aerodynamic and geometric twist, wings with deflected flaps, and wings with ailerons deflected. Section induced drag characteristics. 3 hr. lec.

205. EXPERIMENTAL FLUID DYNAMICS. 2 hr. PR: A.E. 223. Subsonic and supersonic wind tunnel testing methods and practice. Experiments include the following measurements: pressure distribution on bodies, boundary layer determination, turbulence measurements, force tests, and stability and performance determinations. Corrections for scale and jet boundary effects. Data collection. Data reduction by digital computer. Test design, data analysis, and engineering report preparation. 1 hr. lec., 3 hr. lab.

207. FLIGHT VEHICLE DESIGN. 3 hr. PR: A.E. 209. Preliminary design of flight vehicles. Vehicles are designed with regard for performance and stability requirements, considering aerodynamics, weight and balance, structural

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

arrangement, configuration, guidance, and propulsive effects. Layout drawings and calculations are combined in a preliminary design report. 1 hr. lec., 6 hr. lab.

208. Flight Testing. 2 hr. PR: A.E. 209. Flight test theory and practice. Stability and performance determination based on flight test of Cessna 182 airplane. Flight test data reduction practice. 1 hr. lec., 3 hr. lab.

209. Flight Mechanics. 3 hr. PR: A.E. 201. Performance estimation with emphasis on fixed wing aircraft. Fundamental concepts of stability and control of aircraft. 3 hr. lec.

210. Flight Vehicle Structures I. 3 hr. PR: T.A.M. 103. Design of elementary structural forms, truss analysis and use of thin sheet in aero-space vehicles. Deflections by Virtual Work. Least Work and Williot Diagram. 3 hr. lec.

211. Flight Vehicle Structures II. 3 hr. PR: A.E. 210 or equiv. Continuation of A.E. 210. Analysis and design of statically indeterminate structures used in flight vehicles. Emphasis on achieving high strength/weight ratios. 3 hr. lec.

212. Design of Flight Structures I. 3 hr. PR: A.E. 207, 211. Structural design of flight vehicle members. Layout and detail design of specified components are required. 1 hr. lec., 6 hr. lab.

213. Experimental Flight Vehicle Structures. 1 hr. PR: A.E. 211. Strength tests of flight vehicle materials, center of gravity determination, static test of components, bending and torsion of shell structures, compression tests of thin-walled structures. 3 hr. lab.

217. Design of Flight Structures II. 3 hr. PR: T.A.M. 103. Analysis and detail design of simple fittings, beams, welded structures, forgings, castings. Methods of production and fabrication. 1 hr. lec., 6 hr. lab.

218. Aeroelasticity. 3 hr. PR: A.E. 210. The study of vibrating systems of single degree and multiple degrees of freedom, flutter theory and modes of vibration, torsional divergence and control reversal. 3 hr. lec.

219. Introduction to Research. 1-3 hr. PR: Senior standing and consent. An introduction to the methods of organizing theoretical and experimental research. Formulation of problems, project planning, and research proposal preparation.

220. Research Problems. 2-6 hr. PR: A.E. 219. Performance of the research project as proposed in A.E. 219. Project results are given in written technical reports, with conclusions and recommendations.

223. Fluid Dynamics II. 3 hr. PR: A.E. 201, M.E. 120. Analysis of one dimensional compressible flows including effect of friction and heat transfer. Normal and oblique shock waves. Variable area flow. Introduction to multi-dimensional flow covering linearized theory and method of characteristics. 3 hr. lec.

224. Flight Vehicle Propulsion. 3 hr. PR: A.E. 223. Application of thermodynamics and gas dynamics to combustion. Turbine cycles with emphasis on turboprop and turbojet propulsion. Ramjets. Rocket propulsion by chemical, nuclear and electrical systems. Propulsion of staged vehicles. 3 hr. lec.

225. Guided Missile Systems. 3 hr. PR: A.E. 223, and/or conc: A.E. 224. Design philosophy according to mission requirements. Preliminary configuration and design concepts. Aerodynamic effects on missiles during launch and flight. Ballistic missile trajectories. Stability determination by analog simulation. Performance determination by digital and analog simulation. Control, guid-

ance, and propulsion systems. Operational and reliability considerations. 3 hr. lec.

226. Fluid Dynamics IV. 3 hr. PR: A.E. 223. Shock tube theory and applications. Introduction to kinetic theory, the calculation of viscosity and thermal conductivity. Fundamentals of hypersonic flow and the determination of minimum drag bodies. 3 hr. lec.

280. Aero-Space Problems. 1-3 hr. Upper division and graduate.

299. Thesis. 2-6 hr. PR: Senior standing and permission.

Graduate Division

351. Dynamics of Viscous Fluids. 3 hr. PR: A.E. 202. Exact solutions of the Navier-Stokes equations. Laminar boundary layer theory covering similarity solutions and integral methods. Introduction to turbulent flow. 3 hr. lec.

352. Internal Aerodynamics 3 hr. PR: A.E. 223. Systematic and comprehensive treatment of the flow characteristics of diffusers in general and inlet diffusers in particular. Diffuser with the normal shock; flow process and efficiency in one dimensional analysis. Diffusers with variable geometry, and diffusers with external compression. Spike diffusers and subcritical and near critical nonstationary flow process (buzz frequency and intensity). 3 hr. lec.

353. Advanced Fluid Dynamics. 3 hr. PR: A.E. 202. Advanced usage of complex variables, conformal transformation, and stream functions. Extension to three dimensional steady flow. Green's Theorem, Stokes' Theorem, and application of vector notation and methods. Subsonic and supersonic flow. Flow about two and three dimensional bodies by slender body and small-perturbation theory. Similarity rules of high speed flow. Hodograph solutions. 3 hr. lec.

354. Advanced Flight Mechanics. 3 hr. PR: A.E. 209, 223. Dynamic stability. Obtaining flight characteristics of the vehicle from dynamic flight test techniques, such as frequency response, and transient response methods. The problems of automatic control. 3 hr. lec.

355. Gas Dynamics. 3 hr. PR: A.E. 223. Nonsteady gas dynamics and shock tube theory. Applications of shock tubes in aero-space research. Compressible flow theory in the subsonic, transonic and supersonic regime. 3 hr. lec.

356. Fluid Flow Measurements. 3 hr. PR: A.E. 205, 223. The principles and measurements of static and dynamic pressures and temperatures, velocity and Mach number, forces. Optical techniques and photography. Design of experiments. Review of selected papers from the literature. 2 hr. lec., 3 hr. lab.

357. Special Problems. 2-4 hr. PR: Consent. A course for graduate students in the non-research program. The student will select a specialized field and follow a course of study in that field under the supervision of a counselor.

358. Space Mechanics. 3 hr. PR: Math. 245; A.E. 223, 224. Variational formulation of mechanics. Theory of orbits and trajectories with applications to astronautical problems. Introduction to the space environment of the solar system. 3 hr. lec.

359. Aerodynamic Heating. 3 hr. PR: Math. 253, A.E. 351, or M.E. 330. Extension of the analysis of laminar and turbulent boundary layer theory to include compressibility and real gas effects. Slip flow and free molecular flow. Application to high speed vehicles. 3 hr. lec.

372. Advanced Aeroelasticity. 3 hr. PR: A.E. 218. Deformation of structures under static and dynamic loads, flutter of straight and swept wings, disturbed

motion of an elastic model, dynamic response in gusts and landings, the aeroelastic model theory. 3 hr. lec.

373. Dynamic Loads. 3 hr. PR: A.E. 203, 218. Dynamics of a particle, lift distribution during accelerated maneuvers, beam bending and torsion with unsteady loads, empennage loads during dynamic flight conditions, landing impact loads. 3 hr. lec.

374. Materials and Theories of Failure. 3 hr. PR: A.E. 211. Failures in simple stress states, combined stress states; method of fatigue failures, minimum weight structures, evaluation of material to resist design load condition 3 hr. lec.

375. Advanced Flight Vehicle Structures. 3 hr. PR: A.E. 211. Incomplete tension fields, critical loads, torsional column failure, instability of flat sheets, cylindrical structure, special methods of analysis. 3 hr. lec.

397. Research. 1-6 hr. Advanced research or special investigations on some topic relating to aero-space engineering.

AVIATION

Professor Seltzer; Flight Instructors Bennett, Mood, and Wolfe.

NOTE: A.E. 171 and 172, or A.E. 172 and 173, or A.E. 171, 172, and 173, may be taken concurrently by consent.

170. Aviation Ground School. 0-2 hr. Nomenclature of aircraft, civil air regulations, navigation, meteorology, aircraft and aircraft engines. This course serves as preparation for private pilot written examination.

171. Flight Training. 0-1 hr. PR or conc: A.E. 170. Primary flight instruction. First course in a sequence leading toward an F.A.A. private pilot certificate. Twenty hours of flight training in Cessna airplanes. Special flight fee $100, payable at Registration.

172. Flight Training. 0-1 hr. Continuation of A.E. 171. Twenty hours of flight training. Special flight fee $100, payable at Registration.

173. Flight Training. 0-1 hr. Continuation of A.E. 172. Twenty hours of flight training. Special flight fee $100, payable at Registration.

181. Advanced Flight Training. 0-1 hr. Advanced flight instruction with emphasis on cross-country, night and instrument flying. Twenty hours of flight training. Special flight fee $100, payable at Registration.

182. Advanced Flight Training. 0-2 hr. Advanced flight instruction with emphasis on cross-country, night and instrument flying. Forty hours of flight training. Special flight fee $200, payable at Registration.

AGRICULTURAL ENGINEERING

Undergraduate Division

Ag.E.

10. Principles of Agricultural Engineering. 3 hr. PR: Math. 4. A general course introducing the several fields of agricultural engineering and how they are applied in agriculture and industry. 3 hr. rec.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

100. Farm Structures. 3 hr. PR: T.A.M. 102. Structural design and functional requirements of farm service buildings. 2 hr. rec., 3 hr. lab.

110. Application of Electricity to Agriculture. 3 hr. PR: E.E. 106. Economic application of electric light, heat, and power. 2 hr. rec., 3 hr. lab.

140. Soil and Water Conservation. 3 hr. PR: C.E. 115. Engineering principles and practices in conservation, utilization, and management of soil and water resources. 2 hr. rec., 3 hr. lab.

180, 181. Assigned Topics. 1-3 hr. per semester.

190. Farm Machinery. 3 hr. PR: M.E. 201. Construction, operation, adjustment, and testing of farm machines. 2 hr. rec., 3 hr. lab.

200. Seminar. 1 hr. PR: Senior standing.

220. Agricultural Process Engineering. 3 hr. PR: C.E. 115, M.E. 121. Application of the fundamentals of engineering to agricultural engineering processes. 2 hr. rec., 1 hr. lab.

230. Farm Power. 4 hr. PR: M.E. 121. Fundamental theories underlying design and operation of internal combustion engines used in agriculture. 3 hr. rec., 3 hr. lab.

240. Hydrology. 3 hr. PR: C.E. 115. The study of a hydrologic cycle with emphasis on precipitation and runoff as related to design of hydraulic structures, soil and water conservation, and flood control. 3 hr. rec.

Graduate Division

320, 321. Special Topics. 1-6 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

397. Research. 1-6 hr.

CHEMICAL ENGINEERING

Professors Simons, Fairbanks, P. R. Jones, Kent, and Koehler; Associate Professors Galli and Wen; Assistant Professors Crockett and Mahoney; Instructor Boyle.

Undergraduate Division

Ch.E.

*140. Chemical Engineering Calculations. 2 hr. PR: Chem. 2 and Math. 3. Industrial stoichiometry; industrial calculations involving material and energy balances. 2 hr. rec.

201. Chemical Engineering Fundamentals. 3 hr. PR: T.A.M. 101, T.A.M. 104, Math. 253. Review of vector and tensor algebra; viscosity; method of shell balances; equations of continuity, motion, and energy; Navier-Stokes equation; turbulent flow; flow through porous media; microscopic momentum balances; boundary layer; heat conduction in solids; convective heat transfer; boiling and condensation; radiation; diffusion of mass; film and penetration theory; analogies among heat, mass, and momentum transfer. 3 hr. rec.

202. Chemical Engineering Fundamentals. 3 hr. Continuation of Ch.E. 201. 3 hr. rec.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

205. Principles of Chemical Engineering. 5 hr. PR or conc: Chem. 260. Fundamentals and application of the unit operations of chemical engineering. 2 hr. rec., 6 hr. computation lab.

206. Chemical Engineering Operations. 3 hr. PR or conc: Ch.E. 202 and Math. 253. Application of fundamental theory to the design, performance and operation of chemical process equipment. 1 hr. rec., 6 hr. computation lab.

207. Principles of Chemical Engineering. 5 hr. Continuation of Ch.E. 205. 3 hr. rec., 6 hr. computation lab.

208. Chemical Engineering Operations. 3 hr. PR: Ch.E. 206. Continuation of Ch.E. 206. 1 hr. rec., 6 hr. computation lab.

210. Process Engineering. 3 hr. PR: Ch.E. 208. Process equipment calculations for unsteady state. Determination of maximum and minimum process conditions. Economics of processing methods. 3 hr. rec.

211, 212. Chemical Engineering Laboratory. 2 hr. PR: Ch.E. 207. Experimental work in the unit operations; practice in writing engineering reports. 6 hr. lab.

224. Process Development. 3 hr. PR: Chem. 238 and 261, Ch.E. 202, 206, and 243. Development of process systems from the unit operations-unit process concept. Use of thermodynamics and kinetics in the evaluation of system requirements and performance. 3 hr. rec.

234. Chemical Technology. 2 hr. PR: Chem. 233. A survey of some of the manufacturing procedures employed in the process industries, including theory, equipment, and economics. Primarily for Chemistry majors. 2 hr. rec.

235. Chemical Technology. 2 hr. PR: Chem. 233. Similar to Ch.E. 234. 2 hr. rec.

242. Chemical Engineering Thermodynamics and Kinetics. 3 hr. PR: Chem. 261. Material and energy balances; internal energy levels; statistical distributions and statistical evaluation of thermodynamic functions; empirical evaluation of thermodynamic functions; second law of thermodynamics; thermodynamic properties of solutions and solid phases; chemical and physical equilibria. Kinetics of simple and complex chemical reactions; development of rate equations. Kinetics of vapor phase-catalytic reactions; development of rate equations and mechanisms of reactions; backmixing. 3 hr. rec.

243. Chemical Engineering Thermodynamics and Kinetics. 3 hr. Continuation of Ch.E. 242. 3 hr. rec.

248. Statistical Design of Experiments. 2 hr. PR: Math. 253 or consent. Development of the principles of factorial design based on selected observations. Other design procedures such as confounding, composite design and evolutionary operations, with applications to chemical engineering and related fields. Evaluation of the factors affecting systems, development of factor interrelations and the nature of interactions. Determination of optimum conditions. Computing technics. 2 hr. rec.

272. Chemical Engineering Design. 3 hr. PR: Ch.E. 207, T.A.M. 102. Design of process equipment from economic, chemical and engineering considerations. Study of plant location and layout. 2 hr. rec., 3 hr. lab.

273. Chemical Engineering Design. 3 hr. Continuation of Ch.E. 272. 2 hr. rec., 3 hr. lab.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

280. Chemical Engineering Problems. 1-6 hr. For junior, senior, and graduate students.

283. Process Dynamics. 3 hr. PR: Math. 253, Ch.E. 207. Introduction to automatic control and control loop concepts, measurement of variables, dynamic properties of instruments, process response, discussion of controller types, derivation of equations for first and second order control systems, derivation of equations for first and second order process, transient analysis of process and control systems, use of analog computer for process simulation and solution of differential equations. 3 hr. rec.

284. Industrial Instrumentation and Control. 3 hr. PR: Math. 108. Discussion of process characteristics, theory and application of measuring means. Theory, modes and application of automatic control. Selection and characteristics of final control elements. 3 hr. rec.

286. Petroleum Technology. 2 hr. PR: Chem. 233. Discussion of crude oil desalting, distillation, natural gasoline recovery, thermal and catalytic cracking, solvent refining, dewaxing, filtration, blending, and compounding of petroleum products. Principally for students in the School of Mines. 2 hr. rec.

297. Thesis. 2-5 hr. A problem in chemical engineering or industrial chemistry is selected for investigation. A carefully prepared report is required. Open only to qualified seniors. 6-15 hr. lab.

Graduate Division

300. Seminar. 1-6 hr. Hours to be arranged.

302. Advanced Heat Transfer. 2-5 hr. PR: Ch.E. 207, 243, Math. 253. Theory of steady and transient conduction, radiation heat transfer, dimensional analysis and analogy, natural convection, forced convection, heating and cooling inside and outside tubes, finned tubes and compact heat exchangers, packed and fluidized system heat transfer, heat transfer in condensing vapor, heat transfer in boiling liquids and evaporation, high velocity flow heat transmission, application to process heat transfer and design. 3 hr. rec., 0-6 hr. lab.

304. Advanced Mass Transfer. 2-5 hr. PR: Ch.E. 207, 243, Math. 253. Theory of diffusion, interphase mass transfer theory, simultaneous mass and heat transfer, principles of design, equipment survey, mechanical operations, mass transfer performance, scale-up practices, mass transfer in solid-gas and solid-solid phases, liquid-liquid extractions. 3 hr. rec., 0-6 hr. lab.

306. Advanced Fluid Dynamics. 2-5 hr. PR: Ch.E. 207, 243, Math. 253. Vector and tensor analysis, differential equations of fluid flow, flow of nonviscous fluid, laminar flow, turbulent flow, analogy between fluid momentum, mass and heat transfer, dimensional analysis, the laminar sublayer, flow of fluid past immersed bodies, fluid dynamics of particle suspensions, flow of fluids through porous media, non-Newtonian fluid flow. 3 hr. rec., 0-6 hr. lab.

307. Advanced Distillation. 2-5 hr. PR: Ch.E. 207 or Chem. 261. Advanced study of vaporization principles of separation of liquid mixtures, steam, batch, continuous, azeotropic, extractive, and molecular distillation. 3 hr. rec., 0-6 hr. lab.

323, 324. Advanced Process Development. 3 hr. PR: Chem. 238 and 261, Ch.E. 202, 206, 243, and 273. Use of extended and generalized unit process and unit operation concepts; specialized synthetic methods; reaction mechanisms and their effects on equipment design and performance; study of properties, their evaluation, prediction and marketability; industrial toxicology and plant safety. 3 hr. rec.

341. Mathematical Methods in Chemical Engineering. 3 hr. PR: Math. 253. Emphasis is placed upon the formulation of the differential and difference equations, both ordinary and partial, governing chemical engineering operations. Analytic and numerical techniques used for their solutions include transform methods. 3 hr. rec.

344. Advanced Chemical Engineering Thermodynamics. 3 hr. PR: Ch.E. 243. Review of thermodynamic transformations, use of Jacobians; advanced applications to chemical and physical equilibria; development and applications of phase rule; equilibria diagrams for nonideal systems; determination and use of activity coefficients; methods of estimating thermodynamic functions; introduction to statistical mechanics. 3 hr. rec.

345. Advanced Chemical Engineering Kinetics. 3 hr. PR: Ch.E. 243. Applications of chemical kinetics to individual reactor design; review of physical chemical principles; theories of reactions; design of batch and flow reactors; theories of catalysis; reactor mechanisms; data interpretation; applications to design of catalytic reactors; effects of diffusion on catalytic reactions. 3 hr. rec.

372. Advanced Chemical Engineering Design. 2-5 hr. PR: Ch.E. 273. Critical discussion of and practice in equipment-design methods. 2 hr. rec., 0-9 hr. lab.

383. Advanced Systems Engineering. 3 hr. PR: Ch.E. 283, 284. Control systems and the feed-back concept, transfer functions and mathematical analysis of dynamic equations, transient analysis and stability of control systems, frequency response of control system, thermal process dynamics, mass transfer dynamics, chemical process dynamics, use of analog computer for study of system behavior, nonlinear systems and adaptive control, random response and filtering of noise. 3 hr. rec.

397. Research. 1-15 hr. PR: Ch.E. 207, 212. Suitable problem in chemical engineering, nucleonics, or materials science engineering is selected for investigation.

Materials Science Engineering

Mat.E.

250. Engineering Materials Science. 3 hr. PR: Physics 124 or 125. Includes a study of the internal structures of metals, ceramics, and organic materials and the dependence of properties upon these structures. Also included is the behavior of materials under conditions involving mechanical stresses, thermal reactions, corrosion, electromagnetic fields and radiation. 3 hr. rec.

254. Principles of Metallurgical Engineering. 3 hr. PR: Physics 112. Includes the theory and physical principles involved in the production of metals from their ores. 3 hr. rec.

255. Synthetic Materials. 3 hr. PR: Physics 112. Properties, uses and methods of production of synthetic materials such as plastics, elastomers, laminates, lubricants and miscellaneous materials of construction. 3 hr. rec.

260. Physical Ceramics. 3 hr. PR: Physics 124 or 125. The electronic and crystalline structure of ceramic materials; thermodynamics and kinetics of ceramic systems; the mechanical, chemical, electrical, thermal, and optical properties of ceramic materials and the factors affecting them; processing and utilization of ceramic materials. 3 hr. rec.

261. Principles of Ceramic Engineering. 3 hr. PR: Mat.E. 260. Identification of the factors affecting the properties of ceramic systems through application of factorial design; the development of empirical equations showing the relationships between the factors; development of optimum conditions. 3 hr. rec.

*Courses marked by an asterisk may be taken as undergraduate work by udents in other colleges and schools.

*265. Materials Science Laboratory. 2 hr. PR: Mat.E. 250, 255, 260. Preparation and pretreatment of engineering materials for photomicrography and physical inspection. 6 hr. lab.

*269. X-Ray Diffraction. 2 hr. The theory of X-ray diffraction and application to the analysis of crystalline materials, using the powder camera and X-ray diffractometer. Open to students in geology, chemistry, engineering, and related fields with permission of the instructor. 1 hr. rec., 3 hr. lab.

*350. Advanced Physical Metallurgy. 3 hr. PR: Mat.E. 250. Includes the principles of crystallization, plastic deformation, precipitation hardening, and the transformation of austenite. 3 hr. rec.

*351. Metallography Laboratory. 3 hr. PR: Mat.E. 250. Includes radiography, photomicrography, recrystallization, and heat treatment of ferrous and nonferrous metals and alloys. 1 hr. rec., 6 hr. lab.

*352. Alloys. 3 hr. PR: Mat.E. 250. Includes the use of the phase rule, binary and ternary constitutional diagrams, and fundamental principles involved in the formation of alloys. 3 hr. rec.

*360. Advanced Physical Ceramics. 3 hr. PR: Mat.E. 261. The mechanical, chemical, thermal, optical, electrical, and magnetic behavior of ceramic materials, together with their evaluation and prediction. 3 hr. rec.

*361. Ceramics Laboratory. 1 hr. PR: Mat.E. 360. Design of ceramic bodies based on the theoretical behavior; preparation, processing, and measurement of physical properties. 3 hr. lab.

*397. Research. 1-15 hr.

Nuclear Engineering

Nuc.E.

290. Introductory Nuclear Engineering. 3 hr. PR: Physics 112. Includes elementary nuclear physics necessary for understanding nuclear engineering. Design and operation of nuclear reactors, shielding, instrumentation, health physics, fuel cycles, uses of radioactive isotopes, nuclear propulsion. 3 hr. rec.

380. Advanced Independent Study. 1-3 hr. Special studies in fuel reprocessing, shielding, reactor technology, and related areas.

390. Analysis of Nuclear Energy Systems. 3 hr. PR or conc: Physics 225 or equiv., and Physics 287 or equiv. Probability concepts and nuclear cross sections. Multiplication constant and neutron flux. Diffusion theory. Homogeneous reactors: one group theory; multigroup theory. Heterogeneous reactors. Reflected reactors. Reactor kinetics. Control rod theory. Special considerations in analysis of hydrogeneous systems. 3 hr. rec.

391. Principles of Nuclear Reactor Engineering. 3 hr. PR: Nuc.E. 390. Thermal analysis of reactor systems. Shielding. Fuel element design. Reactor poisons. Instrumentation. Economics of nuclear systems. Radiation protection. Legal aspects. Radioactive waste disposal. 3 hr. rec.

392. Interaction of Radiation and Matter. 3 hr. PR or conc: Physics 225. Radiation damage models, effects of nuclear radiations on reactor components and other materials, experimental techniques. Industrial applications: process control, polymerization, sterilization, pasteurization. 3 hr. rec.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

393. Nuclear Laboratory. 3 hr. PR or conc: Nuc.E. 390 or equiv. Techniques of radiation measurements. Determination of neutron properties; diffusion length, albedo, etc. Exponential reactor parameters. Reactor simultation. Experiments with swimming pool reactor and cobalt-60 radiation facility. Dosimetry. 1 hr. rec., 6 hr. lab.

397. Research. 1-15 hr.

CIVIL ENGINEERING

Professors Baker, Burchinal, and Schaub; Associate Professors Kemp and Moh; Assistant Professor Jenkins; Instructors McPherson, Moulton, Ruth, Bonasso,† Hopson,† Michael,† and Seknicka.†

Undergraduate Division

C.E.

*1. Surveying. 2 hr. PR: Math. 4. For non-civil engineering students. Elementary theory of measurement of distance, direction, and difference in elevation. Field work with transit, tape, level, stadia, and plane table. Office computation and plotting. 1 hr. rec., 3 hr. lab.

*2. Surveying. 3 hr. PR: Math. 4. Theory of measurements and errors; introduction to least squares; the terrestial and celestial spheres; figures of the earth; projections; the characteristics of instruments for measuring distance, direction, and elevation; basic field measurements of office computations. 2 hr. rec., 3 hr. lab.

*5. Land Surveying. 4 hr. PR: Math. 10. Primarily for forestry students. Theory and practice with compass, transit, level, stadia, and plane table; computations of area; astronomical observations; map plotting. 2 hr. rec., 6 hr. lab.

*6. Topographic Mapping. 2 hr. PR: C.E. 5. Primarily for forestry students. Topographic maps; surveys for roads and property lines; U. S. Public Land Surveys; practice in lettering, plotting, and inking of topographic maps. 1 hr. rec., 3 hr. lab.

102. Survey Engineering. 6 hr. PR: Math. 116. Theory of measurement and errors; introduction to least squares; figures of the earth; study of instruments for measuring distance, direction, and elevation including their geometry, accuracy, use, and adjustment; terrestrial and celestial spheres and field astronomy; horizontal and vertical curves; earthwork measurement; triangulation; boundary surveying. The design, execution and testing of field surveys for maps, boundaries and routes; determination of true meridian, calculation of areas.

104. Summer Surveying. (5 weeks). 5 hr. PR: C.E. 2. Further study of surveying instruments, including their geometry, accuracy, use, and adjustments; theory of solar and polaris observations, horizontal and vertical curves, earthwork measurement, triangulation, omitted measurements, and partition of area; the planning and design, the execution, and the testing of surveys for maps, hydrography, boundaries, routes, and construction operations; problems in field astronomy, plane table mapping, and leveling.

115. Fluid Mechanics. 3 hr. PR or conc: T.A.M. 104. Fluid statics, laminar and turbulent flow of compressible and incompressible fluids, flow measurements, open channel flow, and kinetics of fluids. 3 hr. rec.

†Part-time.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

116. Fluid Mechanics Laboratory. 1 hr. PR or conc: C.E. 115. Measurement of the properties and flow characteristics of gases and liquids. Hydraulic machinery. 3 hr. lab.

131. Highway Engineering. 4 hr. PR: C.E. 104. Highway administration, economics, and finance; planning and design; subgrade soils and drainage; construction and maintenance. Design of a highway. Center line and grade projections, earthwork and cost estimate. 3 hr. rec., 3 hr. lab.

141. Railway Engineering. 3 hr. PR: C.E. 104. Development and importance of the railroad industry. Principles of location, construction, operation, and maintenance.

145. Water Supply and Sewerage. 5 hr. PR: C.E. 115. Required quantity and quality of water; sources, treatment, pumping, and distribution of water; uniform and nonuniform flow in open channels, rainfall and runoff; design and operation of sewers; sewage treatment. 4 hr. rec., 3 hr. lab.

146. Sanitary Engineering I. 3 hr. PR: C.E. 115. Hydrology as applied to water and waste water systems. Design of water distribution and waste water systems. The study and partial design of water and waste water treatment facilities. 2 hr. rec., 3 hr. lab.

147. Sanitary Engineering II. 3 hr. PR: C.E. 115. Examination of water and waste water, water treatment, waste water treatment and special problems in public health, air pollution and radioactivity. 2 hr. rec., 3 hr. lab.

160. Structural Analysis I. 5 hr. PR: T.A.M. 101 and 102. Analysis of stresses and deflections in statically determinate structures caused by fixed and moving loads. Study of influence lines and loading criteria for beams, and plane and space framed structures. Application of electronic computer techniques to structural problems. 4 hr. rec., 3 hr. lab.

*170. Structural Engineering. 3 hr. PR: T.A.M. 102. Elements of analysis and design of structures of reinforced concrete, steel, and timber; primarily buildings. 3 hr. rec.

*179. Engineering Materials. 2 hr. PR: T.A.M. 103. Properties and behavior of materials used in engineering. 2 hr. rec.

190. Contracts and Specifications. 2 hr. PR: Senior standing or consent. Elements of contracts; contracting procedures; contract documents; preparation of specifications; legal relations, rights, and responsibilities of engineers. 2 hr. rec.

197. Thesis. 2 to 4 hr. Special design, investigation or original research on an assigned topic relating to Civil Engineering.

210. Photogrammetry. 3 hr. PR: C.E. 104. Geometry and interpretation of the aerial photograph; flight planning; radial-line control; principles of stereoscopy; plotting instruments. 2 hr. rec., 3 hr. lab.

211. Geodesy. 3 hr. PR: C.E. 104 and Math. 116. Precise base line measurements, triangulation and leveling, geodetic astronomy; figure of the earth, map projections; rectangular coordinate systems; least squares adjustment; gravity. 3 hr. rec.

221. Engineering Hydraulics. 3 hr. PR: C.E. 145 or consent. Fundamental principles of flow, similitude, flow measurement, water hammer and surging, channel transitions, gradually varied flow, wave motion and sediment transportation. Design of various elements of hydraulic structures. 3 hr. rec.

230. Traffic Engineering. 3 hr. PR: C.E. 131, T.A.M. 104. Principles of traffic operations. The characteristics of drivers, vehicles, and roadways that affect the performance of road systems. Traffic studies relating to origins and destination, accidents, parking, speed, and delays. Consideration of signs, signals, and markings. 3 hr. rec.

231. Concrete and Aggregates. 3 hr. PR: C.E. 131, 179, T.A.M. 103. Considerations and methods for the design of concrete mixes. Effect of air entraining agents and other additives. Studies of the influence of aggregate properties on the design and performance of concrete mixtures. An analysis of the methods of test commonly used for concrete and aggregates and the significance of these tests. 3 hr. rec.

236. Highway Materials Laboratory. 3 hr. PR: T.A.M. 103. Testing of highway materials for compliance with specifications in the State Road Commission's Materials Testing Laboratory. 1 hr. rec., 6 hr. lab.

251. Public Health Engineering. 3 hr. PR: C.E. 145. The engineering aspects involved in the control of the environment for the protection of the health and the promotion of the comfort of man. Discussions will include communicable disease control, milk and food sanitation, air pollution, refuse disposal, industrial hygiene, and radiological health hazards. 3 hr. rec.

252. Water Resources Engineering. 3 hr. PR: C.E. 115. The design of water-resource systems. The interrelationship between economic objectives, engineering analysis and governmental agencies. 3 hr rec.

260. Structural Analysis II. 3 hr. PR: C.E. 160. An introduction to the fundamental theory of statically indeterminate structures. General theory of continuity and iterative and energy methods applied to the analysis of indeterminate beams and frames. 3 hr. rec.

261. Statically Indeterminate Structures. 3 hr. PR: C.E. 260. Advanced topics in indeterminate structural analysis for trusses and nonprismatic members. 3 hr. rec.

270. Structural Design I. 3 hr. PR or conc: C.E. 260. Theory and design of reinforced concrete members. Design considerations for concrete bridges and buildings. 2 hr. rec., 3 hr. lab.

271. Structural Design II. 3 hr. PR or conc: C.E. 260. Design of steel bridge and building structures. Welded, riveted, and bolted connections; simple and moment-resistant connections; cost estimates. 2 hr. rec., 3 hr. lab.

272. Plastic Design of Steel Structures. 3 hr. PR: C.E. 260 or consent. The fundamental concepts of the plasticity of steel. Analysis of structures for ultimate load. The influence of axial forces, shear forces, and local buckling on the plastic moment. Study of structural connections and deflections. Steel structure design. 3 hr. rec.

273. Prestressed Concrete. 3 hr. PR: C.E. 270. The analysis and design of determinate and indeterminate prestressed beams and frames. 3 hr. rec.

275. Reinforced Concrete. 3 hr. PR: C.E. 160, 170. Theory and design of slabs, beams, columns, footings, retaining walls, and concrete buildings. Introduction to principles of prestressed concrete. 2 hr. rec., 3 hr. lab.

280. Soil Mechanics. 3 hr. PR: C.E. 115, T.A.M. 101. Origins and distribution of soils, classification of soils, fundamental soil properties, and stresses in soils. Subsurface exploration. Introduction to foundations design and the design and construction of earth structures. 2 hr. rec., 3 hr. lab.

281. Foundations Engineering. 3 hr. PR: C.E. 131, 280. Soils exploration and the design and analysis of engineering foundations. Particular emphasis on earth pressures and the design of retaining walls, studies of bracing systems and the elements of shallow and deep foundations for bridges and buildings. Movement of water through soil structures and control of water in excavations. 3 hr. rec.

290. Civil Engineering Problems. 1-4 hr. For junior, senior, and graduate students.

Graduate Division

315. Advanced Fluid Mechanics. 3 hr. PR: C.E. 115. Compressible and non-compressible flow, flow with friction and heat transfer, boundary layer flow, fluid machines, unsteady flow and fluid vibrations.

321. Hydraulic Structures. 3 hr. PR: C.E. 221 or consent. The hydraulic analysis and design of engineering structures such as reservoirs, dams, spillways, gates, and outlet works. The study of hydraulic machinery, irrigation, hydroelectric power, drainage and flood control. 3 hr. rec.

330. Bituminous Materials and Mixtures. 3 hr. PR: C.E. 131, 179. Manufacture and testing of bituminous materials. Significance of tests and specifications of bituminous materials. Principles of the design of bituminous mixtures, including methods of test and the influence of aggregate, temperature, and other variables upon design for stability and durability. Production of bituminous mixtures and construction practice in utilizing these mixtures. 2 hr. rec., 3 hr. lab.

331. Pavement Design. 3 hr. PR: C.E. 131, 280. Effects of traffic, soil, and loads on the design of pavement. Consideration of drainage and climate. Design of bases and sub-bases. Methods of design of flexible and rigid pavements. Performance of pavement surveys. 2 hr. rec., 3 hr. lab.

332. Highway Economics and Planning. 3 hr. PR: Consent. Studies of the considerations involved in the planning of a well-integrated highway system. Highway administration and financial structure. Methods of establishing economic value of highway improvement. Classification of systems and rating of the performance of roads. Estimation of future traffic and highway needs. 3 hr. rec.

333. Geometric Design of Highways. 3 hr. PR: Consent. The theory and practice of the geometric design of modern highways. Horizontal and vertical alignment, cross-slope, design speed, sight distances, interchanges, and intersections are discussed. Critical analysis of design specifications. 2 hr. rec., 3 hr. lab.

334. Urban Problems. 3 hr. PR: Consent. The study of the particular problems of transportation in the urban area as they relate to the general development of the city. Emphasis is on the role of the engineer in the planning for urban transportation and the relationship of the engineer to the city planner and to the city administration. 3 hr. rec.

335. Surface and Subsurface Drainage. 3 hr. PR: Consent. The study of the nature and requirements of drainage studies and drainage design as they pertain to transportation facilities. Emphasis is on the theory of drainage design and a critical analysis of drainage practices. 3 hr. rec.

336. Highway Planning I. 3 hr. PR: Consent. Analysis of planning programs and methods including highway needs studies, priority rating systems, and programming methods. Consideration of traffic assignment and forecasting techniques. Devoted primarily to rural route problems. Case history method of study utilized. 3 hr. rec.

337. Highway Planning II. 3 hr. PR: Consent. Continuation of C.E. 336, with special attention to urban locations and planning. 3 hr. rec.

338. Highway Laws. 3 hr. PR: Consent. The analysis of existing highway laws with emphasis on those aspects particularly related to planning functions such as reservation of rights-of-way, access control, eminent domain, systems classification, and the basis for the existence and operation of various planning agencies. 3 hr. rec.

350. Sanitary Chemistry and Biology. 3 hr. PR: C.E. 145, Bact. 248, or consent. Study of the physical and chemical properties of water. Theory and

methods of chemical analysis of water, sewage, and industrial wastes. Biological aspects of stream pollution problems. 2 hr. rec., 3 hr. lab.

352. Water Treatment Theory. 3 hr. PR: C.E. 350. Theory of the various procedures and techniques utilized in the treatment of water for municipal and industrial use. Review of water quality criteria. 2 hr. rec., 3 hr. lab.

353. Sewage and Industrial Waste Treatment. 3 hr. PR: C.E. 350. Theory and methods of sewage treatment. Chemical, biochemical, and physical factors related to waste treatment. Characteristics of industrial wastes and special considerations necessary for their disposal. 2 hr. rec., 3 hr. lab.

354. Air Pollution I. 3 hr. PR: Consent. Properties of gases, aerosols and particles in the atmosphere. Particulate sampling and analysis. The planning and operation of atmospheric surveys. 2 hr. rec., 3 hr. lab.

357. Hydraulics of Sanitary Engineering Works. 3 hr. PR: C.E. 221. The application of the techniques of population growth estimation, rainfall and runoff analysis, flood flow, and ground water data to the design of sanitary works. Design of water distribution systems and sewerage systems. 2 hr. rec., 3 hr. lab.

358. Design of Sanitary Works. 3 hr. PR: C.E. 221. The investigation of water supply and waste water disposal problems. The design of water purification and waste water treatment facilities. 2 hr. rec., 3 hr. lab.

359. Basic Radiological Health. 3 hr. PR: Consent. Fundamental theory and terminology. Environmental and occupational hazards in the nuclear field. Laboratory measurements of radioactivity. 2 hr. rec., 3 hr. lab.

360. Statically Indeterminate Structures. 3 hr. PR: C.E. 260 or consent. General theory of continuity, iterative and classical methods of analysis of skeleton structures with emphasis on the influence coefficient method. 3 hr. rec.

361. Bridge Engineering. 3 hr. PR: C.E. 360. Statically indeterminate trusses; continuous trusses; steel and concrete arches; long-span and suspension bridges; secondary stresses. 3 hr. rec.

362. Numerical Methods of Structural Analysis. 3 hr. PR: C.E. 261 or 360. Methods of successive approximations and numerical procedures for the solution of structural problems. Application of these procedures to the analysis of bridges and buildings. 3 hr. rec.

363. Introduction to Structural Dynamics. 3 hr. PR: Math. 240, C.E. 261 or 360. General theory for dynamic response of systems having one or several degrees of freedom. Emphasis on the application of dynamic response theory to structural design. 3 hr. rec.

375. Reinforced Concrete Design. 3 hr. PR: C.E. 270. Theories of action of beams, slabs, and columns of reinforced concrete; review of standard codes and specifications and their influence on design. 3 hr. rec.

376. Behavior of Reinforced Concrete Members. 3 hr. PR: C.E. 270, or consent. Studies of the actual behavior and strength of reinforced concrete members by critically reviewing experimental and analytical investigations. Beams subjected to pure flexure, columns subjected to axial compression; combined flexure and compression; combined flexure, shear, and bond. 3 hr. rec.

377. Behavior of Reinforced Concrete Structures. 3 hr. PR: C.E. 376. Continuation of C.E. 376. Studies of behavior and strength of statically indeterminate reinforced concrete structures. Comparison with reinforced concrete codes and specifications.

380. Soil Mechanics. 2-6 hr. PR: Consent. Advanced study of soil structure, shear strength, consolidation, and earth pressures. Sand drains, stress distribution, slope stability, seepage.

381. Soil Testing. 3 hr. PR: C.E. 280. The testing of soils for engineering purposes including classification, strength, consolidation, compaction, permeability, and special tests. Critical review of test methods and the analysis of test results. Organization and operation of a soils testing laboratory. 1 hr. rec., 6 hr. lab.

382. Foundations and Earthwork Design. 3 hr. PR: C.E. 380. Planning and performance of subsurface exploration. Principles of the design and analysis of retaining walls, pile foundations, bulkheads, and shallow and deep foundations. Considerations in the design of embankments and slopes. Problems of soft ground and rock construction. 3 hr. rec.

390. Advanced Design Problems. 2-6 hr. A design or investigation of any assigned problem related to civil engineering.

395. Seminar. 1-2 hr. PR: Consent. Studies and group discussions of structural, fluid mechanics, surveying, transporation, and sanitary problems.

397. Research. 2-6 hr. Original report or investigation on some topic in the civil engineering field.

ELECTRICAL ENGINEERING

Professors Jones, Kreer, and M. J. Smith; Associate Professors Dubbe, Peterson, N. S. Smith, Jr., Swartwout, and Theophilus; Assistant Professor E. C. Barbe; Instructor D. F. Barbe.

Undergraduate Division

E.E.

*25. Electric Circuits. 4 hr. PR: Math. 117, Physics 102. Basic concepts, nonlinear elements, introduction to steady state electrical circuit theory (d-c and a-c), Ohm's law, Kirchhoff's laws, circuit analysis theorems, phasor algebra and its application to a-c circuit analysis. 3 hr. rec., 3 hr. lab.

*105. Electrical Fundamentals. 4 hr. PR: Math. 253, Physics 102. Fundamental principles of electric and magnetic circuits. Induced and generated electromotive force. Fundamental a-c circuit analysis. Polyphase systems. Elementary electronics. (Primarily for non-electrical engineering students.) 3 hr. rec., 3 hr. lab.

*125. Electric Circuits. 4 hr. PR: E.E. 25, Math. 253. Complex frequency concept, Laplace transformation, transient analysis of both d-c and a-c circuit analysis. 3 hr. rec., 3 hr. lab.

*126. Electric and Magnetic Fields. 3 hr. PR: Math. 253, Physics 102. Electric scalar potential; line integrals; the vector concepts of gradient, divergence and curl; flux lines and potential theory; the electric dipole; polarization; electric and magnetic fields of symmetrical geometrical systems; magnetic vector potential; ferromagnetism; elements of field mapping; summary in Maxwell's equations. 3 hr. rec.

*145. Electronic Fundamentals. 4 hr. PR: E.E. 105. A study of solid state devices, oscillators, and amplifiers. (Primarily for non-electrical engineering students.) 3 hr. rec., 3 hr. lab.

*152. Electronics. 4 hr. PR: E.E. 125, 126. The study and use of semi-conductor devices and vacuum tubes as circuit elements; rectifiers and voltage amplifiers. 3 hr. rec., 3 hr. lab.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

180. Electrical Problems. 1-3 hr. For sophomore and junior students.

200. Seminar. (Credit). PR: Senior standing. Special material and projects.

*205. Electrical Fundamentals. 4 hr. PR: E.E. 105. Fundamentals and operating characteristics of electrical machines and transformers. Electron tube, phototube, and transistor characteristics. Electronic circuits. (Not open to electrical engineering students.) 3 hr. rec., 3 hr. lab.

*225. Electric Circuits. 4 hr. PR: E.E. 125. Distributed circuits (transmission lines), steady analysis of distributed circuits, simulation of distributed circuits by equivalent lumped parameter circuits. Interpretation of transmission line as general four terminal network (A B C D constants), matrix methods of combination of four terminal networks, introduction of "modern" network analysis. 3 hr. rec., 3 hr. lab.

226. Electromagnetic Fields. 3 hr. PR: E.E. 126. Plane waves in dielectric media; plane waves in conducting media; transmission lines; wave guides; antennas. 3 hr. rec.

232. Electromechanical Devices. 4 hr. PR: E.E. 125, 126. Fundamentals of electromechanical energy conversion. Transformers and rotating machines. 3 hr. rec., 3 hr. lab.

233. Electromechanical Devices. 4 hr. PR: E.E. 232. Analysis of machine-performance by the principles of electromechanical energy conversion. 3 hr. rec., 3 hr. lab.

235. Electrical Machinery. 3 hr. PR: E.E. 233 or consent. Synchronous machines, windings, calculation of emf and mmf; mmf space functions. Potier diagram, ASA regulation, 2-reactance diagrams. Multiple-winding transformers and auto transformers. 2 hr. rec., 3 hr. lab.

236. Electrical Machinery. 3 hr. PR: E.E. 233 or consent. Commutation theory of machines, d-c and a-c multiple-winding and special purpose machines; multiple machine systems. 2 hr. rec., 3 hr. lab.

*252. Electronics. 3 hr. PR: E.E. 152. Analysis of power amplifiers, tuned amplifiers, oscillators, modulators, demodulators, and wave-shaping circuits. 3 hr. rec.

*257. Transistor Circuits. 3 hr. PR: E.E. 252 or consent. A study of the general operating properties of the transistor as a circuit element. 3 hr. rec.

261. Networks and Filters. 3 hr. PR: E.E. 225 or consent. Analysis and synthesis of network and filters. 3 hr. rec.

262. Electronic and Communications Laboratory. 2 hr. PR: E.E. 252 or consent. A study of tuned amplifiers, oscillators, modulators, wave-shaping circuits, transmission line characteristics, and special topics. 6 hr. lab.

*264. Communications Engineering. 3 hr. PR: E.E. 252 or consent. Study and analysis of radio transmission, receiving and sound systems, frequency modulation, television radiation and propagation. 3 hr. rec.

270. Engineering Analysis and Design. 3 hr. PR: E.E. 232, 252. Formulation and application of the method of engineering analysis based upon fundamental physical laws, mathematics, and practical engineering considerations. Emphasis is placed on the professional approach to the analysis of engineering problems. 3 hr. rec.

*271. Theory of Digital Computers. 3 hr. PR: Senior standing in Engineering or Mathematics. An introduction to the field of digital computer design.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

Topics include general computer organization, number systems and number representations, design characteristics of major computer units, Boolean algebra and its application to computer design and sequencing of basic arithmetic processes in a computer. 3 hr. rec.

*272. Digital Computer Logic Design. 3 hr. PR: E.E. 271 or consent. This course is a sequel to E.E. 271. Topics include binary arithmetic (counting, addition, subtraction, multiplication, division), characteristics of control units, decimal arithmetic, and advanced topics. 3 hr. rec.

275. Pulse Techniques. 3 hr. PR: E.E. 225, 252. An introduction to the response of electrical networks to non-sinusoidal inputs, the analysis of active networks with large signals and the circuits and techniques used in pulse and digital equipment. 3 hr. rec.

280. Electrical Problems. 1-3 hr. For junior, senior, and graduate students.

281. Electrical Power Systems. 3 hr. PR: E.E. 226 or consent. Polyphase transformation with three-phase and with single-phase transformers. Principles of circuit protection and relaying. Principles of grounding. Introduction to symmetrical components. 2 hr. rec., 3 hr. lab.

282. Symmetrical Components. 3 hr. PR: E.E. 226 or consent. An application to the methods of symmetrical phase components in calculating currents in systems under various types of unbalanced conditions. 3 hr. rec.

285. Electric-Power Transmission and Distribution. 3 hr. PR: E.E. 226. A study of circle diagrams applied to the various problems of power transmission; phase modifier applications and an introduction to power system stability. 3 hr. rec.

286. Fundamentals of Servomechanisms. 3 hr. PR: E.E. 225. Fundamental analysis of the servomechanisms and automatic control devices. 3 hr. rec.

287. Industrial Electronics and Controls. 3 hr. PR: Consent. A study of electronic and magnetic control equipment and its application in industry. 3 hr. rec.

288. Antennas. 3 hr. PR: E.E. 264 or consent. Analysis and design of antenna systems. 3 hr. rec.

*293. Analogue Computers. 3 hr. PR: Math. 253. A study of the theory and operation of analogue computers. Amplitude scaling and time scaling on the analogue computer and application of the analogue computer to the solution of differential equations. 3 hr. rec.

299. Ultra-High Frequency Technology. 3 hr. PR: E.E. 264 or consent. Study of special problems encountered at high and ultra-high frequencies. 3 hr. rec.

Graduate Division

300. Seminar. 1-3 hr. PR: Consent. Discussion of research in electrical engineering and special problems.

301. Electrical Power Systems. 3 hr. PR: E.E. 281 or consent. Load flow problems. Transient and steady state stability of systems. The principles of the application of network analyzers and other computing devices to the solution of power system problems. 3 hr. rec.

310. Switching Circuit Theory I. 3 hr. PR: E.E. 271 or consent. This course together with E.E. 311 provides the basis for mathematical switching theory. Boolean algebra and related systems are developed from the postulational

approach and applications to the theory of computers and automata are studied in detail. The emphasis is upon setting up of mathematical models and a careful study of their properties rather than upon logical design and/or techniques of computation. 3 hr. rec.

311. Switching Circuit Theory II. 3 hr. PR: E.E. 310. This course is a continuation of E.E. 310. 3 hr. rec.

325. Advanced Linear Circuit Analysis. 3 hr. PR: Consent. Systematic formulation of circuit equations using topographical methods. Application of matrix algebra and complex variable theory to circuit analysis. 3 hr. rec.

326. Advanced Electric and Magnetic Field Theory. 3 hr. PR: Consent. Maxwell's equations, electromagnetic waves, poynting vectors, guided waves. 3 hr. rec.

330. Electrical Machinery. 3 hr. PR: E.E. 235 or consent. Advanced theory of synchronous and induction machinery following Parks-Doherty-Nickel theory; applications of matrix algebra and tensor analysis. 3 hr. rec.

348. Nonlinear Problems in Electrical Engineering. 3 hr. PR: Consent. A study of the solution of nonlinear differential equations encountered in electrical engineering and automatic control. 3 hr. rec.

350. Electronic Circuits. 3 hr. PR: E.E. 252. An advanced study for the analysis and design of electronic circuits. 3 hr. rec.

351. Physical Electronics. 3 hr. PR: E.E. 252. Application of principles of physics to predict the external characteristics of electronic devices. 3 hr. rec.

361. Modern Network Synthesis. 3 hr. PR: E.E. 325. A study of the basic methods of modern network synthesis with applications to communications and automatic control systems. 3 hr. rec.

365. Noise Theory. 3 hr. PR: Consent. A study of methods of solving noise problems in communications and automatic control. 3 hr. rec.

386. Servomechanisms. 3 hr. PR: E.E. 286 or consent. An advanced study of the analysis and synthesis of servo-control circuits. 3 hr. rec.

387. Sampled-Data Control Systems. 3 hr. PR: E.E. 386 or consent. A study of control systems in which the activating signal is represented by samples at regular time intervals. 3 hr. rec.

397. Research. 1-6 hr. Advanced research or special investigations on some topic related to electrical engineering.

GENERAL

Professors C. H. Cather and Worrell; Instructor Long.

G.

1. Engineering Lectures. (Credit). Required of all freshmen in engineering. A series of lectures designed to acquaint the engineering student at the beginning of his course with the profession he has chosen. 1 hr. lec.

100. Inspection Trip. (Credit).

190. Law for Engineers. 3 hr. PR: T.A.M. 102. Contracts, agency, business organization, sales, negotiable instruments, real and personal property, professional registration, and patents. 3 hr. rec.

INDUSTRIAL ENGINEERING

Professor R. E. Shafer; Associate Professor Fowler; Assistant Professor Cook; Instructors Black, Delaney, Donnally, Martin, Nelson, and Schmidt.

Undergraduate Division

I.E.

*7. Welding and Heat Treatment. 1 hr. Practice in cutting and welding steel and cast iron with oxyacetylene and arc welding equipment. Demonstrations of different methods of heat treatment. One 3 hr. lab.

*11. Machine Work. 2 hr. A study of equipment, purpose and character of operations, methods of holding work, turning, boring, drilling, grinding, and shaping. Use of precision measuring instruments. Two 3 hr. labs.

*15. Welding, Forming, and Heat Treatment. 2 hr. Molding and casting of nonferrous metals, oxycetylene welding, electric welding, resistance welding of plates, pipes, tubing, etc. Lectures, recitations, demonstrations, and laboratory practice. 6 hr. lab.

*100. Manufacturing Processes. 3 hr. Lectures, demonstrations, and laboratory work relating to methods, types of equipment and character of operations of welding machines and machine tools. Emphasis is placed on the economic use of machine tools, assembly line manufacture, gauging, and inspection. 2 hr. rec., 3 hr. lab.

110. Tool Design. 3 hr. PR: I.E. 100. Design, construction, application, and economic aspects of jigs, fixtures, and special tools used in manufacturing on a production basis. 2 hr. rec., 3 hr. lab.

131. Fundamentals of Industrial Engineering. 2 hr. PR: Sophomore standing. Principles of organization, including study and design of organization charts. Integration of motion and time study, production control, accounting, job evaluation, engineering economy, and other functions of industrial engineering into a composite industrial picture. Review of existing labor laws and current legislation. 2 hr. rec.

*140. Motion and Time Study. 3 hr. PR: Junior standing. Principles and techniques, job analysis, standardization, and formula construction; stop watch and micromotion analysis of industrial operations; development of production and incentive standards. 2 hr. rec., 3 hr. lab.

142. Production Control. 3 hr. PR: I.E. 140. Planning, scheduling, routing and dispatching in manufacturing operations and production control systems. Problems in industrial plant design. Layout for operation and control. Space utilization. 3 hr. rec.

*151. Accounting for Engineers. 3 hr. PR: Junior standing. A study of the accounting cycle, journals, and ledgers; study of fixed assets and depreciation; interpretation of financial statements. A survey of the essentials of cost accounting. Emphasis is placed on the utilization of cost data and reports by management, indicating management's control over industrial operations. 3 hr. rec.

160. Work Measurement and Methods Engineering. 4 hr. PR: Junior standing. Fundamentals of motion and time study, job analysis and standard practice. Advanced work measurement techniques of micromotion analysis, work sampling, standard data and formula construction, and pre-determined time standards. Development of allowances, production, and incentive standards.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

Methods engineering, operation analysis, process chart usage in man, machine, and materials handling analysis. Operator analysis of workplace layout, motion economy design, and synthetic methods development by use of fundamental motions. 3 hr. rec., 3 hr. lab.

*180. Introduction to Digital Computation. 3 hr. PR: Math. 2 or 3. Introduction to stored-program concepts, flow diagrams, looping, decisions, input-output techniques, interpretive systems, algebraic compilers, symbolic assembly systems, machine languages, subroutines, equipment components, and their applications. The student will have considerable opportunity to actually process numerical problems. The field of present and future equipment components will be surveyed, and the advantages and disadvantages of various techniques and systems will be indicated. 2 hr. rec., 3 hr. lab.

*200. Metal-Cutting Theory and Practice. 3 hr. PR: I.E. 100, Mat.E. 250. Metal-cutting tools, tool materials, work materials, cutting fluids, process of chip formation, cutting forces, tool-life tests, economics of tool life, measurement of product. 2 hr. rec., 3 hr. lab.

211. Industrial Engineering Problems. 1-3 hr. PR: I.E. 140, and senior standing. Special problems relating to industrial engineering.

*214. Advanced Analysis of Engineering Data. S. 3 hr. PR: I.E. 244. The application of advanced theories of statistical techniques to analyze and interpret industrial problems. Subjects include multiple regression, curvilinear regression, advanced analysis of variance, randomized complete blocks, Latin Square designs, factorial designs, transformations, and analysis of response curves. Accent is on proper design of experiments, proper interpretation of results, and thorough consideration of all errors of estimation and errors of inference. 3 hr. rec.

*215. Statistical Decision Making. 3 hr. PR: I.E. 244 or consent. Probability relating to decision processes and essential logic in the applications of statistics and how management can recognize situations in which it will be profitable to employ them. 3 hr. rec.

*240. Motion and Time Study. 3 hr. PR: Junior standing. Not for industrial engineering students. Principal aims and applications of time and motion study. Job analysis, standardizations, use of stop watch micromotion analysis, operation and methods analysis. 2 hr. rec., 3 hr. lab.

*244. Engineering Statistics. 3 hr. PR or conc: Math. 108. The use of graphical analysis; measures of central tendency and dispersion; normal, binomial, and Poisson distributions in engineering applications; linear regression and correlation; tests of significance, nonparametric statistics, and analysis of variance. 3 hr. rec.

*250. Electronic Computer Data Processing. 3 hr. PR: Senior standing. Fundamentals of digital computer operations, equipment characteristics, input and output components. Elements of number systems. Fundamentals of "IR," information retrieval. Emphasis is placed on integrated systems analysis and design, business and industrial data for computer applications, and fundamentals of programming. Existing equipment systems and the economics of their applications will be reviewed.

*254. Introduction to Operations Research. 3 hr. PR: I.E. 244, and conc: I.E. 142 or consent. Economic problems of production management, schematic models, linear programming, total value analysis, incremental analysis, Monte Carlo analysis, and equipment investment analysis. 3 hr. rec.

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

286. Engineering Economy. 2 hr. PR: Junior standing. Comparison of the relative economy of engineering alternatives; compound interest in relation to calculation of annual costs; present worth and prospective rates of return on investment; increment costs, sunk costs, and the economy of equipment replacement. 2 hr. rec.

*287. Engineering Economy. 3 hr. PR: Junior standing. Comparison of the relative economy of engineering alternatives; compound interest in relation to calculation of annual costs; present worth and prospective rates of return on investments; methods of depreciation; sunk costs, increment costs; general economy studies with emphasis on retirement and replacement of equipment; consideration of taxes, public works, and manufacturing costs as related to economic solution of engineering proposals. 3 hr. rec.

*288. Job Evaluation and Wage Incentives. 2 hr. PR: I.E. 140 or consent. Principles used in evaluating jobs, rates of pay, characteristics and objectives of wage incentive plans; incentive formulae and curves. 2 hr. rec.

*290. Industrial Statistics. 2 hr. PR: I.E. 244. Economic objectives of quality control in manufacturing through sampling methods; the Shewhart control chart for variables, attributes, and defects per unit; statistical approach to acceptance procedures. 2 hr. rec.

292. Plant Layout and Design. 3 hr. PR: I.E. 110 and 142. Problems in industrial plant design. Equipment location, space utilization, layout for operation and control, flow sheets, materials handling. Allied topics in power utilization, light, heat, and ventilation. 1 hr. rec., 6 hr. lab.

*294. Standard Manufacturing Costs. 3 hr. PR: I.E. 151. Development of standards for labor, material, and overhead expenses; uses of standards for control; analyses of variances between standard and actual costs. 3 hr. rec.

Graduate Division

300. Advanced Metal-Cutting Theory and Practice. 3 hr. PR: I.E. 200. The development of metal-cutting as a science through research, cutting-fluid theory, machinability of materials, tool materials, hot machining, tool-life tests, economics of machining. 2 hr. rec., 3 hr. lab.

310. Advanced Manufacturing Processes. 3 hr. PR: I.E. 100. A study of the newer and more complex manufacturing methods used in industry today. Welding and forming of titanium, magnesium, beryllium, and similar metals; assembly processes; powder metallurgy; adhesives and bonds; roll milling; electrical and chemical operations such as electro-forming and hot-dipping operations; hot forging; high energy rate forming (HERF); automated manufacturing processes including transfer mechanisms, continuous, and point-to-point numerical control; plastic tooling and fabrication methods; marking processes; and other manufacturing processes will be examined. 2 hr. rec., 3 hr. lab.

311. Seminar. 1-3 hr. PR: Consent. Discussion of research in Industrial Engineering and special problems.

315. Management Control. 3 hr. PR: I.E. 151 or consent. A study of effective techniques for higher management control; a study of integrated and related control data to aid in establishing a preconceived goal. 3 hr. rec.

344. Advanced Design of Industrial Experiments. 3 hr. PR: I.E. 214. A study of several of the more complex statistical methods including sequential analysis, analysis of covariance, multiple range tests, transformation of data,

*Courses marked by an asterisk may be taken as undergraduate work by students in other colleges and schools.

large factorial experiments, confounding, fractional replication, split-plot designs, lattice designs with one and two restrictions on treatment allocation, with special emphasis on the power, relative efficiency, and interpretation of these designs.

350. Queueing Theory. 3 hr. PR: I.E. 244. Best operating conditions for systems involving waiting times. Elements of stochastic processes. Single-channel and multi-channel models. Computational methods, including Monte Carlo techniques. Applications to problems such as maintenance and inventory control. 3 hr. rec.

351. Theory of Linear Programming. 3 hr. PR: Math. 253 and I.E. 244. Extreme point solutions and their generation. Development of the simplex procedure. Duality problems in linear programming. Revised simplex procedure. Degeneracy procedures. Transportation problems. Selected topics related to linear programming. 3 hr. rec.

361. Methods Analysis and Work Simplification. 3 hr. PR: I.E. 140, 287. An advanced study of the techniques of methods analysis, including modern means of methods research. Development of appropriate cost analyses to accompany improved operating plans. A study of the design, installation, and administration of work simplification programs, suggestion systems, and remuneration policies, and the means of intra-plant communications concerning such programs. 2 hr. rec., 3 hr. lab.

370. Theory of Industrial Engineering and Organization. 3 hr. PR: Graduate standing and consent. History and development of scientific management in industry with early works of Taylor, Galbreth, and Gantt, to the present time. 3 hr. rec.

371. Methods Analysis. 2 hr. PR: I.E. 140 or I.E. 240. An advanced study of the technique of methods analysis as an effective means of methods improvement and cost reduction. 2 hr. rec.

372. Advanced Time Study. 3 hr. PR: I.E. 140. Review of the various investigations which have been made, with special consideration given to the development of these studies into new fields. 3 hr. rec.

373. Budget Control. 3 hr. PR: I.E. 294. Principles involved in the preparation of budgets by functional divisions and the application of divisional budgets as control media. 3 hr. rec.

374. Advanced Engineering Economy. 3 hr. PR: I.E. 287. Special emphasis on depreciation, engineering and economic aspects of selection and replacement of equipment; relationship of technical economy to income taxation and load factor and capacity to economy. 3 hr. rec.

380. Integrated Data Processing. 3 hr. PR: I.E. 250 and consent. Advanced work in electronic data-processing systems and procedures design. Case studies of integrated data-processing systems. Course projects will include individual use of a computer in management data-processing analysis problems. 3 hr. rec.

381. Digital Computer Applications. 1 hr. PR: Graduate standing in Engineering, Physical Science or Mathematics. Introduction to methods of digital computation and study of the programming process with emphasis on coding with an automatic programming language for scientific problems (FORTRAN). The student will have considerable opportunity to analyze engineering and scientific problems using the facilities available at the University Data Processing Center. 2 hr. rec., 3 hr. lab. (5-week period).

390. Advanced Industrial Statistics. 3 hr. PR: I.E. 290. Advanced study of 10 per cent-, double-, and sequential-sampling procedures, problems of application of statistical quality control methods in industries. 3 hr. rec.

397. Research. 1-6 hr. Investigation or original research on some special topic relating to industrial engineering.

MECHANICAL ENGINEERING

Professors J. T. Anderson and H. M. Cather; Associate Professors Genscoy, Hamilton, and Slonneger; Assistant Professor Parmer; Instructors Bluman, Keagy, Long, O'Leary, Dixon,† Golan,† Sherren,† and W. D. Teter.†

M.E.

Undergraduate Division

20. Engineering Drawing and Graphics I. 3 hr. PR: Plane geometry. Lettering, use of instruments, geometric construction, orthographic projection, section and conventions, auxiliary views, descriptive geometry, pictorial sketching, dimensioning. 1 hr. rec., 6 hr. lab.

26. Engineering Drawing and Graphics II. 2 hr. PR: M.E. 20 and Math. 4. Graphical calculus, empirical equations, nomography vectors, graphical accuracy, co-ordinate systems. 6 hr. lab.

109. Mechanism. 2 hr. PR: M.E. 26 and Math. 117. Analytical and graphical analysis of the displacement, velocity and acceleration properties of fundamental machine configurations. Study of the requirements for constrained motion as a basis for mechanical synthesis and motion programming. 6 hr. lab.

112. Kinematics and Dynamics of Machines. 3 hr. PR: M.E. 109 and T.A.M. 104. Analytical and graphical analysis of force and motion effects applying to mechanical systems. Problems of periodic motion on force and isolation. 2 hr. rec., 3 hr. lab.

120. Engineering Thermodynamics. 3 hr. PR: Physics 111 and Math. 117. First and second laws of thermodynamics; energy equations; properties of gases and vapors; gaseous mixtures and combustion. 3 hr. rec.

121. Thermodynamics of Engineering. 3 hr. PR: Physics 111, Math. 117. Principles of thermodynamics; properties of gases and vapors; vapor cycles; internal combustion engines cycles; refrigeration; and heat transfer. Not open to students majoring in mechanical engineering. 3 hr. rec.

122. Mechanical Laboratory. 1 hr. PR: M.E. 121. Experiments involving calibration of measuring instruments, calorific value of fuels, physical properties of lubricating oil, and elementary tests of engines and boilers. 3 hr. lab.

125. Engineering Thermodynamics. 3 hr. PR: M.E. 120 or consent. Continuation of M.E. 120; gas cycles; vapor cycles; air-vapor mixtures; flow; thermodynamics relations and equilibrium. 3 hr. rec.

126. Advanced Engineering Graphics. 2 hr. PR: Math. 117. Nomography, graphical and numerical analysis curve fitting, vectors, problem solution by analog and digital computers, graphical integration differentation.

132. Measurements and Computers. 2 hr. PR or conc: M.E. 120. Measurements, data analysis, standards and accuracy, calibration, pressure, force and temperature, etc., as applied in the experimental technique. An introduction to analog and digital computations. 1 hr. rec., 3 hr. lab.

133. Engineering Laboratory. 2 hr. PR: M.E. 132. Continuation of M.E. 132. Experiments involving heat transmission, refrigeration, and internal combustion engines. 3 hr. lab.

201. Design of Machine Members. 3 hr. PR: T.A.M. 103 and M.E. 112 or consent. Analysis and design of machine members based on the theory of strength of materials and its modifications due to manufacturing processes and economic considerations. Emphasis is on rational methods and the development of judgment in the design. 1 hr. rec., 6 hr. lab.

†Part-time.

202. Engineering Analysis and Design. 3 hr. PR: M.E. 201 and consent. Use of fundamental principles of mathematics, statics, physics, mechanics, thermodynamics, and heat transfer in the rigorous analysis of engineering problems. Determination of the critical specifications of the problem solution and the use of a creative approach to the satisfaction of these critical specifications in a workable system. 2 hr. rec., 3 hr. lab.

203. Machine Design. 3 hr. PR: M.E. 201. Design of complete machines to perform given functions. Creative design is encouraged to provide new ideas. Final designs are selected to perform the function, be economical and easy to fabricate, and have a generally pleasing appearance. 1 hr. rec., 6 hr. lab.

204. Mechanical Vibrations. 3 hr. PR: Math. 253 and M.E. 112 or consent. Fundamentals of vibration theory. Free and forced vibration of single and multiple degree of freedom systems. Solution by Fourier and Laplace transformation techniques. Transient analysis emphasized. Energy methods. 3 hr. rec.

205. Kinematics. 3 hr. PR: M.E. 112 and Math. 253, or consent. Geometry of constrained motion, kinematic synthesis and design, special linkages. Coupler curves, inflection circle, Euler-Savary equation, cubic of stationary curvature and finite displacement techniques. 3 hr. rec.

223. Power Plants. 3 hr. PR: M.E. 125. Principles of design and operation of modern steam power plants for central stations and for process industries. Each student submits an individual design problem. 3 hr. rec.

224. Steam Turbines. 3 hr. PR: M.E. 125. The theory of fluid dynamics and the thermodynamics of the modern turbines; materials, construction details and design of important elements; influences on economy of variations in cycles and operative ranges. 3 hr. rec.

228. Mechanical Engineering Laboratory. 1 hr. PR: M.E. 132. Application of measurements to the testing of machines, heat transmission, refrigeration, internal combustion engines, etc. 3 hr. lab.

229. Internal Combustion Engines. 3 hr. PR: M.E. 121 or M.E. 125. The thermodynamics of the internal combustion engines; Otto cycle; Diesel cycle; two- and four-cycle engines, fuels, carburetion and fuel injection; combustion; engine performance, supercharging. 3 hr. rec.

230. Heat Transfer I. 3 hr. PR: M.E. 120 or M.E. 121. Steady state and transient conduction, including extended surface and numerical methods, emphasizing both forward and backward time step methods. Thermal radiation including radiation functions and radiation network theory. Boundary layer equations and forced and free convection are also covered. 3 hr. rec.

231. Introduction to Gas Dynamics. 3 hr. PR: M.E. 125 or M.E. 121, Math. 240 and Math. 253. The basic fundamentals of gas dynamics, one-dimensional gas dynamics and wave motion, methods of measurement, effect of viscosity and conductivity, and concepts from gas kinetics. 3 hr. rec.

235. Heat Transfer II. 3 hr. PR: M.E. 230. A continuation of M.E. 230, covering nonlinear extended surface; gas radiation; freezing, heat exchanger theory; recovery factor and high speed flow; and mass transfer. Also, periodic flow and application of the digital computer to problems in heat transfer. 3 hr. rec.

250. Heating, Ventilating, and Air Conditioning. 3 hr. PR: M.E. 125 or consent. Methods and systems of heating, ventilating, and air conditioning of various types of buildings, types of controls and their application. 3 hr. rec.

260. Introductory Engineering Systems Analysis. 3 hr. PR: Senior standing. A study of analogous and mixed systems. Similitude of mechanical, electrical, and acoustic dynamic systems. Dimensional analysis and theory of model design. 3 hr. rec.

265. Engineering Acoustics. 3 hr. PR: Math. 253 and consent. Use of fundamental principles of mathematics and physics to develop the basic theories of sound. Application of these theories involving sound in closed areas, the various modes of sound transmission, noise control, and psychoacoustic criteria. 3 hr. rec.

271. Fluid Power Control. 3 hr. PR: Math. 253 and E.E. 105 or equivalent background. Introduction to automatic control systems and concepts of feedback. Transfer function analysis of the equations of motion. Transient and steady state response. Stability criteria using Nyquist, root locus and frequency response techniques. 3 hr. rec.

280. Mechanical Problems. 1-6 hr. For junior, senior, and graduate students.

Graduate Division

300. Seminar. 1-3 hr. PR: Consent. Discussion, library readings, and individual study reports in the mechanical engineering field.

303. Advanced Machine Design. 3 hr. PR: M.E. 203. Stresses in indeterminate machine parts, experimental stress analysis. Design for high temperatures, pressures and speeds. Bearings and lubrication. Rotating discs and elastic stability and high speeds. Residual stresses and creep. 3 hr. rec.

320. Advanced Thermodynamics. 3 hr. PR: M.E. 125. Definitions and scope of thermodynamics, First and Second laws, Maxwell's relation, Clapeyron relations, equation of state, thermodynamics of reactive systems, availability.

321. Advanced Thermodynamics II. 3 hr. PR: M.E. 320 or consent. Methods of statistical mechanics; concept of temperature; perfect diatomic gases and crystalline solids, Jacobean equations of thermodynamics; grand potential function; inherently irreversible processes.

330. Advanced Heat Transfer. 3 hr. PR: M.E. 230 or consent. Analytical and application treatment of steady state and transient conduction, including internal generation, integral equation forms, numerical solutions and minimum weight fin theory. Boundary layer theory of forced convection, Nusselt film theory of condensation and boiling theory.

331. Advanced Heat Transfer. 3 hr. PR: M.E. 330 or consent. Continuation of M.E. 330. Thermal radiation theory and application in addition to measurement errors and techniques. Topics covered will be radiation network theory, radiation functions and theory of emissivity. Some time is allowed for modern developments in heat transfer including the solution of heat transfer problems on digital computers.

351. Advanced Internal Combustion Engines. 3 hr. PR: M.E. 229 or consent. Combustion in spark ignition engines; compression ignition engines; detonation; fuel-air ratios; heat losses; lubrication; efficiencies; two-stroke engines; four-stroke engines; performance, exhaust turbines; gas turbines. 3 hr. rec.

352. Turbomachinery. 3 hr. PR: M.E. 121 or M.E. 125. A study of flow problems encountered in the design of water, gas and steam turbines, centrifugal and axial flow pumps and compressors, design parameters. 3 hr. rec.

354. Advanced Refrigeration. 3 hr. PR: M.E. 250. Thermodynamics of vapor cycles, refrigerants, fluid flow, heat transfer, psychrometrics, types of refrigeration and equipment required, application of refrigeration in industry, food preservation. 3 hr. rec.

360. Engineering Similitudes. 3 hr. PR: Consent. Development of the dimensional analysis concepts and techniques and their application in model design. Rational approach to the design of distorted models. Study of analogies from a standpoint of model-prototype relations. 3 hr. rec.

397. Research. 1-10 hr. Investigation or original research on some topic relating to mechanical engineering.

THEORETICAL AND APPLIED MECHANICS

Professors Byars, C. H. Cather, Weaver, and Worrell; Associate Professor Shreeves; Assistant Professor Plants; Instructors Snyder, Haynes,† Lucas,† and McElhaney.†

Undergraduate Division

T.A.M.

101. Statics. 3 hr. PR: Math. 108, Physics 111 (or reg. in Math. 108). Fundamental definitions and the concept of state equilibrium; systems of forces and couples; application to solution of trusses and frames; centroids and moments of inertia. 3 hr. rec.

102. Mechanics of Materials I. 3 hr. PR: T.A.M. 101 and Math. 108. Stress, strain, stress-strain relationships; Mohr stress and strain-circles; load-stress and load-deformation relationships for axial, torsion, bending, and buckling loads; inelastic as well as elastic theory is considered; deflections; column theory. 3 hr. rec.

103. Mechanics of Materials II. 3 hr. PR: T.A.M. 102 and Math. 108. Theories of failure and design procedures; survey of experimental stress analysis; fatigue, energy, creep, relaxation, and temperature considerations. Laboratory work in behavior of common engineering materials under load; evaluation and interpretation of mechanical properties. 2 hr. rec., 3 hr. lab.

104. Dynamics. 3 hr. PR: T.A.M. 101 and Math. 108. Kinematics of a particle; movement of inertia of masses; translation, rotation and plane motion of rigid bodies; principle of work and energy impulse and momentum; application to engineering problems. 3 hr rec.

200. Advanced Mechanics of Materials I. 3 hr. PR: T.A.M. 103 or consent. Energy methods; localized stresses; curved flexural members; torsion of non-circular sections; thick-walled cylinders and rotating disks; contact stresses.

201. Theory and Application of Oscillatory Phenomena. 3 hr. PR: T.A.M. 104. Study of oscillations or vibrations in acoustical, electrical, hydraulic and mechanical systems. 3 hr. rec.

202. Advanced Materials Laboratory. 2-4 hr. PR: T.A.M. 103. Continuation of T.A.M. 103 with emphasis on a selected problem or problems.

203. Experimental Stress Analysis. 3 hr. PR: T.A.M. 103, 104. Introduction to some of the more common experimental methods of analyzing stress distributions. Photoelasticity, brittle lacquers, birefrigent coatings, strain gage techniques and instrumentation, as applied to problems involving static, dynamic and residual stress distributions. 2 hr. rec., 3 hr. lab.

210. Continuum Mechanics. 3 hr. PR: Undergraduate mechanics and Math. 253. A course designed to emphasize the basic laws of physical behavior of continuous media. Course content to include: analysis of stress; equations of motion and boundary conditions; kinematic analysis; rates of strain, dilatation, and rotation; bulk time rates of change; constitutive equations with special attention to elastic bodies and ideal fluids; energy equations and the first law of thermodynamics. 3 hr. rec.

250. Intermediate Dynamics. 3 hr. PR: Math. 253, T.A.M. 104. Mechanics of a particle; curvilinear coordinates, geometry of space curves, moving refer-

†Part-time.

ence frames, generalized coordinates. Dynamical principles; D'Alembert's principle, principle of virtual work, Lagrange's equations, variational formulation of Hamilton's principle. Simple non-linear systems. 3 hr. rec.

280. Special Problems in Mechanics. 1-3 hr. PR: T.A.M. 103 and consent. For junior, senior, and graduate students.

Graduate Division

302. Analytical Methods in Engineering. 3 hr. PR: Math. 253 or consent. A course designed to provide training in the applications of mathematical analysis to engineering problems. Course content to include: index notation; determinant, matrices, and quadratic forms; linear transformations, eigen-value problems; complex variables; analytic functions, Taylor and Laurent expansions, residue theory, applications of conformal mapping; ordinary linear differential equations in the complex plane, existence and uniqueness theories, series solution for regular and irregular singularities, Legendre and Bessel equation, integral solutions. 3 hr. rec.

303. Analytical Methods in Engineering. 3 hr. PR: T.A.M. 302 or consent. Continuation of T.A.M. 302. Course content to include: partial differential equations, method of characteristics, initial and boundary conditions; Dirichlet, Neumann, vibrating string, and other related problems; calculus of variations, stationary values of functions and functionals, Euler equations and boundary conditions, Lagrange multipliers, second variation for maximum problems, applications such as Hamilton's principle, linear integral equations, equations of the first and second kind, solution by successive substitution and approximation, eigen-values and eigen-functions, Fredholm theory, applications. 3 hr. rec.

310. Advanced Mechanics of Materials II. 3 hr. PR: Consent. Membrane stresses in shells; bending of flat plates; two-dimensional elasticity; beams on elastic supports.

312. Inelastic Behavior of Engineering Materials. 3 hr. PR: T.A.M. 200. Rheological aspects of inelastic behavior; inelastic load-stress relationship for members subjected to axial, bending, torsion and buckling loads. Analytical stress-strain relationship and use of Ramberg-Osgood parameters. Combined loading, interaction curves and their use. Statically indeterminate members loaded inelastically; inelastic buckling theory.

314. Theory of Buckling. 3 hr. PR: Math. 253, T.A.M. 316. Fundamental theorems for the investigation of stability of mechanical systems. Application to discrete systems and development of stability equations for elastic bodies. 3 hr. rec.

316. Energy Methods in Applied Mechanics. 3 hr. PR: Math. 253, T.A.M. 200 and T.A.M. 310 desirable. Introduction to variational principles of mechanics and applications to engineering problems; principle of virtual displacements, principle of minimum potential energy, principle of complementary energy, Castigliano's theorem, Hamilton's principle. Applications of energy principles to stress analysis of frames, rings, curved beams, elastic plates. 3 hr. rec.

320. Theory of Elasticity I. 3 hr. PR: Math. 253 or consent. A basic solid mechanics course to include: Cartesean tensors; equations of classical elasticity, energy, minimum, and uniqueness theorems for the first and second boundary value problems; St. Venent principle; extension, torsion, and bending problems. 3 hr. rec.

321. Theory of Elasticity II. 3 hr. PR: T.A.M. 320. Continuation of T.A.M. 320 with course content to include: generalized tensors; equations of finite elasticity; equations of classical elasticity in generalized coordinates; complex

variables and potentials; plane stress and strain; various special problems. 3 hr. rec.

324. Theory of Thin Shells. 3 hr. PR: Math. 240 or 253 and 254 or equiv., T.A.M. 321, 314. Theoretical basis for analysis of shell-type structures. Material includes differential geometry of surfaces, current shell theories; and stability criteria. 3 hr. rec.

330. Instrumentation in Engineering. 3 hr. PR: T.A.M. 104 or equiv. Theory of measuring instruments, with emphasis on dynamic, as opposed to static or slowly changing, measurements of force, pressure, displacement, vibration, temperature, etc. Also, selection of instruments for specific purposes. 2 hr. rec., 3 hr. lab.

340. Photoelasticity. 3 hr. PR: T.A.M. 200, 203. Theory of optics, birefringence, stress-optic law, polariscope, compensation. Techniques of model making, photography, polariscope use. Data interpretation by various methods including principal stress separation by shear difference and graphical integration. 2 hr. rec., 3 hr. lab.

350. Advanced Dynamics I. 3 hr. PR: T.A.M. 250. Continuation of T.A.M. 250. Mechanics of a system of particles; mechanics of rigid bodies; theory of moments of inertia, angular momentum and kinetic energy, Poinsot's interpretation of torque-free motion, Euler's angles, Euler's dynamical equations, pitch, roll, yaw, spinning top, gyroscopes, etc.

351. Advanced Dynamics II. 3 hr. PR: Math. 254 or equiv. Dynamics of continuous solids. Wave motion; study of string motion in detail in order to introduce methods for attacking more general problems, vibration of beams, membranes and plates. Stress propagation in unlimited solids; dilitational, distortional, and surface waves.

380. Advanced Independent Study. 1-3 hr. PR: T.A.M. 200, 203, Math. 253 or Math. 254. Individual investigation, either analytical or experimental, in one or more phases of advanced mechanics.

397. Research. 1-6 hr. Advanced research or special investigations on some topic related to mechanics.

Courses in the School of Mines

Professor Holland; Associate Professors Laird and McClung; Assistant Professors Sandy and Wasson.

ENGINEERING OF MINES

Undergraduate Division

E.M.

1. Freshman Orientation. I. (Credit). Required of all freshmen in mining and petroleum engineering. A series of lectures designed to acquaint the student at the beginning of his course with the characteristics and requirements of the engineering profession, with particular attention to the mineral engineering fields. 1 hr. lec. Staff

102. Mine Surveying. SI. 5 hr. PR: Math. 15. Principles of surface and subsurface surveying, celestial observations, and related calculations together with intensive field practice in underground and surface surveying. Rec. and field work arranged. Mr. Laird

106. Mineralogy. II. 2 hr. PR: Chem. 2. Mineral identification, blowpipe analysis of minerals; occurrence, geographic distribution and utilization of minerals; elements of crystallography. Two 3 hr. labs. Mr. Laird

108. Fundamentals of Mining. I. 4 hr. PR: Geol. 1, Math. 117, Physics 102, E.M. 102, or consent. Mineral prospecting, drilling, use of explosives, mining methods for bedded deposits and ore bodies, timbering and application of mining machinery. 4 hr. rec. Mr. McClung

111. Introductory Mining. I, II. 2 hr. PR: Physics 102. A review of the past and present status of the mineral industries together with the tools and methods of mining exploitation including prospecting, drilling and blasting. 2 hr. rec. Mr. Sandy

112. Mine Plant Design. II. 3 hr. PR: E.M. 212, T.A.M. 102, C.E. 115 and Mat.E. 250 or concurrent enrollment. Applications of the principle of mechanics and mining technology to the analysis and design of mine building, head-frames, bins, skips and cages. 2 hr. rec., 3 hr. lab. Mr. Sandy or Mr. Holland

207. Introductory Seismology. I, II. 1 hr. PR: Physics 102. Earthquakes and the causes and area distribution; theory of elastic waves; the principles of seismograph construction, adjustment, and operation; interpretation and calculation of seismograms with exercises provided by records of the University seismograph station. 1 hr. rec. Mr. Laird

208. Geological Surveying. II. 1 hr. PR: E.M. 102, Geol. 151. Topographic mapping with the plane table. 3 hr. field. Mr. Laird

209. Mineral Preparation. I, II. 2 hr. PR: T.A.M. 104, or consent. Principles of preparation, beneficiation and concentration of metallic and non-metallic ores for further processing or utilization. 2 hr. rec. Mr. Sandy

210. Mineral Preparation Laboratory. I, II. 1 hr. PR: E.M. 209 or concurrent registration in E.M. 209. Laboratory exercises and practice in sampling, screen analyses, float and sink separation, assembly and interpretation of test data, and the use of various types of beneficiation equipment as applied to metallic and non-metallic minerals. 3 hr. lab. Mr. Sandy

212. Advanced Mining. II. 3 hr. PR: E.M. 108, E.E. 105. Engineering principles, methods and equipment applied to mine transportation, hoisting, and drainage. 3 hr. rec. Mr. McClung

213. Mine Ventilation. I. 3 hr. PR: E.M. 108, T.A.M. 104 and C.E. 115. Principles, purposes, methods and equipment pertaining to the ventilation of mines. 2 hr. rec., 3 hr. lab. Mr. McClung

214. Mine Valuation, Cost Control and Economics. I, II. 3 hr. PR: Econ. 2, E.M. 108, or consent. Mineral property evaluation, sampling and estimation of mineral deposits, capitalized costs in mining and recovery of investment, analysis of mining costs, cost control and time analysis of mining operations. 3 hr. rec. Mr. Sandy

215. Industrial Safety Engineering. I, II. 2 hr. PR: Junior standing or consent. Analysis of problems of industrial safety and accident prevention, laws pertaining to industrial safety and health, compensation plans and laws, and industrial property protection. 2 hr. rec. Mr. Sandy

217. Coal Preparation. I, II. 3 hr. PR: E.M. 212, C.E. 115, E.M. 209, and E.M. 210. Formation of coal, rank classification of coal, coal petrography, principles of preparing and beneficiating coal for market with laboratory devoted to sampling, screen analysis, float and sink separation and use of various types of coal cleaning equipment. 2 hr. rec., 3 hr. lab. Mr. Sandy

218. Advanced Mineral Preparation. I, II. 3 hr. PR: E.M. 108, E.M. 209, and E.M. 210. The theory and practice of concentration ores and industrial minerals with special consideration to the more recent advances in the beneficiation of both ores and coal. 2 hr. rec., 3 hr. lab. Mr. Sandy

219. Advanced Mining Methods for Vein Deposits. I, II. 3 hr. PR: E.M. 108, T.A.M. 104. Methods and systems of mining other than flat seams. Emphasis placed on selection of methods in relation to cohesive strength of ore bodies and their enclosing wall rocks. Mining of anthracite seam included. 3 hr. rec. Mr. Sandy

220. Mine Design. I, II. 3 hr. PR: E.M. 212, E.M. 241, and registration in E.M. 112. A comprehensive design problem involving underground mining developments or design of surface plant or both, as elected by the student in consultation with the instructor. A complete report on the problem is required including drawings, specifications and cost analysis. 9 hr. lab. Mr. McClung or Mr. Sandy

221. Mine Design. I, II. 2 hr. PR: E.M. 217, 220. Continuation of E.M. 220 including design of preparation plant and loading facilities with full report covering plans, equipment, operation, and costs. Two 3 hr. labs. Mr. Sandy

222. Mine Equipment and Machinery. I, II. 3 hr. PR: E.E. 205, E.M. 212. Selection, installation, operation, and maintenance of mining equipment. 3 hr. rec. Mr. McClung

223. Mine Management. II. 3 hr. PR: Math. 253, E.M. 212 and senior standing. Economic, governmental, social, and labor aspects of mining as related to the management of a mining enterprise. 3 hr. rec. Mr. Sandy

224. Mining Engineering Problems. I, II. 1-6 hr. PR: Senior or graduate standing. Investigation and detailed report on a special problem in mining engineering related to coal mining or mineral mining. Supervision and guidance by a member of the graduate faculty. Staff

227. Mine Power Applications. I. 2 hr. PR: E.M. 222 or consent. Underground transmission systems, electrical controls for mining machinery, alternating current applications in coal mining, power costs and safety features. 2 hr. rec. Mr. McClung

228. Mine Equipment and Machinery Controls. II. 3 hr. PR: E.M. 227 or consent. Principles, application and use of electric and hydraulic devices and circuits for protection and control of mine machinery and equipment. 3 hr. rec. Mr. McClung

229. Advanced Mining Equipment Applications. I. 3 hr. PR: E.M. 228. Structural, mechanical, hydraulic and electrical characteristics of the more common items of mining equipment. Controls, electrical and hydraulic circuits, and mechanical transmissions with associated problems. Laboratory design of a control system for a mining machine. 2 hr. rec., 3 hr. lab. Mr. McClung

230. Elements of Geophysical Prospecting. I. 3 hr. PR: Geol. 3, Physics 102. Principles, calculations and application of methods for locating subsurface oil, gas, and mineral deposits. Mr. Laird

231. Geophysical Prospecting Laboratory. I. 1 hr. PR: E.M. 230 or concurrent registration in E.M. 230. Field and laboratory use of instruments used in geophysical prospecting. 3 hr. lab. and field. Mr. Laird

233. Theory and Practice of Coal Preparation. SI. 4 hr. PR: Physics 102, Math. 117, or consent. Theory of coal beneficiation processes and the design, operation, and control of coal preparation plants. Includes the theory and practice of sampling, crushing, sizing, cleaning, and drying of coal, the operation and maintenance of coal washing and auxiliary equipment, materials handling, plant efficiencies and quality control. The laboratory work consists

principally of the determination of the cleanability characteristics of coal, interpretation of gravity separation data, chemical analysis, and the operation of typical coal washing equipment. Not open to students taking E.M. 217. 4 hr. rec., 4 hr. lab. Mr. Sandy

234. Applied Geophysics. II. 3 hr. PR: Physics 102, Geol. 3, or consent. The application of the science of geophysics in prospecting for oil and minerals, and in the location and analysis of earthquakes. 3 hr. rec. Mr. Laird

241. Mechanics of Ground Control in Mines. I. 3 hr. PR: T.A.M. 102, Math. 253, E.M. 108 or consent. Structure of the earth's crust, bedding planes, joints, heterogeneity, mechanical properties of rocks, stress-time-deformation relationships in rocks, theoretical stress distribution about mine openings, practical effects, factors in mine pillar design, pillar bursts, creeps and squeezes, mining subsidence. 2 hr. rec., 3 hr. lab. Mr. Holland

Graduate Division

301, 302. Advanced Mine Design. I, II. Credit arranged. Advanced detail design and layout of coal mine plant, particularly incorporating new ideas of machines and mining methods. Staff

351. Coal Mining. SI. 3 hr. PR: Chemistry, 10 hr.; physics, 8 hr..; and accompanied or preceded by general geology. Especially for students who are planning to teach mining subjects in high school. Not open to students taking E.M. 108 or 212. Hours arranged.

395, 396. Graduate Seminar in Coal Mine Operation and Administration. I, II. 3-6 hr. PR: B.S. Degree and consent of Committee. Group discussion and analysis of problems related to the production, preparation, marketing, and utilization of coal with special assignments and emphasis in accordance with personal background and field of interest of the individual student. Staff

397. Research. I, II. Credit arranged. Individual problem in some phase of mining. Carefully prepared report required. Staff

PETROLEUM ENGINEERING

Undergraduate Division

Pet.E.

101. Oil Field Development. I. 3 hr. PR: Math. 117, Geol. 1. Introduction to principles, equipment and methods applied to development of an oil property. 2 hr. rec., 3 hr. lab. Mr. Wasson

104. Oil and Gas Production. II. 3 hr. PR: Pet.E. 101. Continuation of Pet.E. 101 and core analysis and oil testing laboratory. 2 hr. rec., 3 hr. lab. Mr. Wasson

203. Petroleum Property Valuation and Management. II. 2 hr. PR: Pet.E. 104, Econ. 2, Math. 117 or consent. Petroleum property valuation and acquisition; economic governmental and social aspects of management of oil and gas properties. 2 hr. rec. Mr. Wasson

205. Gas Measurement Engineering. II. 2 hr. PR: Pet.E. 101, Pet.E. 236, and C.E. 115. Methods of commercial gas measurement and pressure regulation with a laboratory devoted to use of various types of equipment. 1 hr. rec., 3 hr. lab. Mr. Laird

216. Petroleum Engineering Design. II. 3 hr. PR: Pet.E. 104, Mat.E. 250, C.E. 115, T.A.M. 102. Structural and machine design analysis and design as related to the production and transportation of oil and natural gas. 1 hr. rec., two 3 hr. labs. Mr. Laird

224. Petroleum Engineering Problems. I, II. 1-6 hr. PR: Senior or graduate standing. Investigation and detailed report on a special problem in petroleum or natural gas engineering. Supervised by a member of the graduate faculty.

232. Petroleum Reservoir Engineering. I. 3 hr. PR: Pet.E. 236. Concepts and applications of properties of rocks and rock-fluid systems which are fundamental to engineering analysis of petroleum reservoirs. 3 hr. rec. Mr. Wasson

235. Fundamentals of Well Logging. II. 3 hr. PR: Math. 253, Pet.E. 104, or consent. Principles of the various well logging methods and related calculations with exercises in interpretation of actual data from actual well logs. 2 hr. rec., 3 hr. lab. Mr. Laird

236. Mechanics of Hydrocarbon Fluids. I. 3 hr. PR: Physics 102, C.E. 115, Pet.E. 104, Chem. 163. The qualitative and quantitative phase behavior of single and multicomponent hydrocarbon systems with emphasis on application to petroleum production engineering and petroleum reservoir engineering. 2 hr. rec., 3 hr. lab. Mr. Wasson

237. Composition and Properties of Oil Well Drilling Fluids. I. 3 hr. PR: Pet.E. 104, Chem. 163 and C.E. 115. Principles of drilling fluid control including a laboratory for testing procedures and measurement of composition and properties. 2 hr. rec., 3 hr. lab. Mr. Laird

238. Oil and Gas Law. II. 2 hr. PR: Pet.E. 104. Landowners interest, the oil and gas lease, transfer of interest, conservation laws, contracts, business organization, sales, professional registration, patents. 2 hr. rec. Mr. Wasson

239. Advanced Petroleum Reservoir Engineering. II. 3 hr. PR: Pet.E. 232, M.E. 230. Mechanics of fluid flow in porous media, production by depletion drive, by frontal displacement, by water drive, by segregation drive and secondary recovery. 3 hr. rec. Mr. Wasson

240. Secondary Recovery of Oil By Water Flooding. I. 3 hr. PR: Pet.E. 232 or consent. Theory of immiscible fluid displacement mechanisms, evaluation, and economics of water flood projects and oil field flooding techniques. 3 hr. rec. Mr. Wasson

Graduate Division

301. Advanced Petroleum and Natural Gas Engineering Design. I, II. Credit arranged. Advanced detail design problems in some phase of petroleum and natural gas exploration, production, and transportation, particularly incorporating new ideas, machines and methods.

397. Research. I, II. Credit arranged. An individual research problem in some phase of petroleum and natural gas exploration, production, and transportation. A carefully prepared report is required.

Research and Extension

THE ENGINEERING EXPERIMENT STATION

The chief functions of the Engineering Experiment Station are to encourage and carry on research and investigations that will enhance the industrial and economic welfare of the people of West Virginia; to make original contributions to the fundamental principles and knowledge along scientific and engineering lines; and to stimulate and train graduate students in research activities.

The research undertaken by the Station therefore is primarily concerned with investigations in the production, processing, and utilization of the natural resources of West Virginia; investigations that will aid existing industries and promote the development of new industries in the State; and investigations that will aid in the planning, design, and development of the public works of the State. As a consequence of this program, the subjects receiving particular attention by the staff of the Station are coal, oil, gas, clays, stone, sand, timber, water, steam and electric power, sewerage, sanitation, road building, transportation, aeronautics, and communications.

The Station will assist in compiling surveys and in conducting investigations of the industrial requirements and possibilities of any region or community in the State. It cooperates with the West Virginia University Agricultural Experiment Station, State Road Commission, State Geological and Economic Survey, State Water Commission, U. S. Bureau of Mines, national engineering societies, and state or national agencies whose assistance may promote the more effective fulfillment of the Station's functions.

To aid State industrial organizations that lack funds, facilities, and personnel to undertake important research investigations which arise in the development of their operations, the Station stands ready, where time and facilities permit, to assist in the prosecution of investigation on their fundamental problems. Such advisory services are free, but any special equipment, materials, or labor that may be needed must be supplied by the organization for which the work is being done. Several companies and technological associations are sponsoring research fellowships in the Station.

The staff of the Station includes part-time services of teaching members of the faculties of the College of Engineering and the School of Mines, as well as full-time research engineers and chemists and part-time graduate student research assistants and fellows.

The results of the studies, surveys, investigations, and researches of the Experiment Station are published in bulletin form. Two series of bulletins are issued, and to date there are 28 numbers in the Research Series and 63 in the Technical Series. The Technical Bulletins contain certain selected papers from the *Proceedings* of the Annual State Water Purification Conferences, the State Coal Conferences, the Appalachian Gas Measurement Short Courses, the Appalachian Underground Corrosion Short Courses, and the Industrial Engineering Conferences. In addition, 113 technical papers have been published; these are articles in the engineering, scientific, and technical journals. A list of publications and copies of the bulletins may be obtained upon application to the Director of the Engineering Experiment Station.

In June 1961 the College of Engineering moved into the new Engineering Sciences Building where much more space is available for research. In addition, the Station retained three laboratories in the Mineral Industries Building having a total area of over 6,000 square feet. The School of Mines also obtained additional research space in the Mineral Industries Building. This added space gives the Station much needed room for its rapidly expanding research program.

U. S. BUREAU OF MINES STATION

The United States Bureau of Mines maintains laboratory and pilot-plant facilities for research and development work on the production of synthesis gas from coal, which is part of the Bureau's over-all program for synthetic fuel development.

Under the terms of a cooperative agreement between the University and the Bureau, students are employed by the Bureau on a part-time basis.

In the selection of part-time student workers, preference is given to those in the upper one-third of their class.

MINING AND INDUSTRIAL EXTENSION

The Department of Mining and Industrial Extension of the School of Mines conducts courses of instruction in practical subjects in various sections of the State where groups of individuals wish to study and receive training in subjects pertaining to their everyday work. The Department also aims to disseminate useful knowledge which has been amassed by research studies at the University to all citizens in the State, and in this way to bring the University and its opportunities for learning to various groups of students who desire to enroll in its extension department. In-

formation and special announcements pertaining to Extension courses may be obtained by writing to the Department of Mining and Industrial Extension, West Virginia University, Morgantown.

COAL RESEARCH BUREAU

The Coal Research Bureau of the School of Mines was established by the University and written into law by the Legislature in 1962 following recommendations made by the Governor's Scientific Advisory Council on the Uses of Coal.

The purpose of the Bureau is to find new uses and markets for West Virginia coal by actively carrying on a coal research program looking toward that end.

The Bureau is empowered to accept gifts, grants and contracts for coal research and to contract for research services with outside agencies. The research in the Bureau is carried on by the director and staff of the Bureau subject to the rules and regulations of the Board of Governors and under the supervision and direction of the Dean of the School of Mines. The work done by the Bureau covers a broad scope of technical interests ranging from economic studies to highly technical studies involving coal carbonization and conversion of coal to liquid and gaseous fuels. The Bureau keeps abreast of the work done by other research organizations and works in close cooperation with the Federal Bureau of Mines, the State Department of Mines, the Planning and Research Division of the State Department of Commerce, the Office of Coal Research, as well as with other divisions and departments of the University.

An Advisory Committee on Coal Research, appointed by the Governor, advises and counsels the University on the program of the Bureau and makes recommendations to the Governor and Legislature concerning the support of its program.

From time to time the Bureau will publish reports of its activities, findings, and recommendations and distribute them to interested parties and agencies.

The Graduate School

Complete information concerning graduate work may be found in the *Announcements* of the Graduate School, and in the *Announcements* of the various colleges and schools of the University. (Also see page 74 of this *Catalog*).

By order of the Board of Governors of West Virginia University, a University Graduate School is established, whose roots are implanted in all University undergraduate work, irrespective of colleges, schools, or departments. The Graduate School is empowered: (1) to direct research and investigation with particular reference to problems of the State, and (2) to train and recommend to the Board of Governors candidates for the degrees listed below.

The Kanawha Valley Graduate Center of West Virginia University, located at Institute, was established in 1958. Courses leading to the master's degree in chemistry, chemical engineering, mechanical engineering, and business administration are available at the Center.

All regulations governing the Graduate School such as the determination of curricula, projects, majors, minors, standards, thesis requirements, and similar matters shall be formulated by the Executive Committee and the Dean of the Graduate School and presented to the Graduate Faculty for its consideration and action.

THE ADVISER

The adviser will arrange a specific course of study to be approved by the Dean and, in the case of candidates for advanced degrees, will preside at the candidate's qualifying and final examination.

THE FACULTY

The Graduate Faculty is composed of those faculty members who are actively assisting with any phase of the graduate program such as teaching graduate courses, directing graduate research, supervising thesis and problem work, advising graduate students and directing their graduate studies. Membership is by appointment by the Dean of the Graduate School following certification by the Executive Committee. The Deans of the various colleges and schools, the Vice President-Medical Center, the Provost of the University, and the President of the University are members ex officio.

GRADUATE DEGREES

Graduate degrees offered by the departments in the University which have been approved for graduate work are as follows:

Master of Agriculture (M.Agr.)
Master of Arts (A.M.)
Master of Business Administration (M.B.A.)
Master of Home Economics (M.H.E.)
Master of Music (Mus.M.)
Master of Science (M.S.)
Master of Science in Aero-Space Engineering (M.S.A.E.)
Master of Science in Agricultural Engineering (M.S.Agr.E.)
Master of Science in Chemical Engineering (M.S.Ch.E.)
Master of Science in Civil Engineering (M.S.C.E.)
Master of Science in Electrical Engineering (M.S.E.E.)
Master of Science in Engineering (M.S.E.)
Master of Science in Engineering of Mines (M.S.E.M.)
Master of Science in Extension Education (M.S.Ext.Ed.)
Master of Science in Forestry (M.S.F.)
Master of Science in Industrial Engineering (M.S.I.E.)

Master of Science in Mechanical Engineering (M.S.M.E.)
Master of Science in Nuclear Engineering (M.S.N.E.)
Master of Science in Petroleum Engineering (M.S.Pet.E.)
Master of Science in Theoretical and Applied Mechanics (M.S.T.A.M.)
Master of Science in Home Economics (M.S.H.E.)
Master of Science in Home Economics Education (M.S.H.E.Ed.)
Master of Science in Journalism (M.S.J.)
Master of Social Work (M.S.W.)
Doctor of Philosophy (Ph.D.)
Doctor of Education (Ed.D.)

GRADUATE CERTIFICATES

Graduate Certificates offered by certain departments or divisions of the University include:

Certificate of Advanced Study in Education

PROFESSIONAL DEGREES

The following professional degrees are conferred upon graduates of the College of Engineering and the School of Mines of West Virginia University on the basis of practical experience and study in absentia, the presentation of a thesis, and an oral final examination:

Aero-Space Engineer (A.E.)
Chemical Engineer (Ch.E.)
Civil Engineer (C.E.)
Electrical Engineer (E.E.)
Mechanical Engineer (M.E.)
Engineer of Mines (E.M.)
Petroleum Engineer (Pet.E.)

REQUIREMENTS FOR THE GRADUATE DEGREE

General Regulations

1. CANDIDACY

Admission to candidacy for any graduate degree is conditioned upon the fulfillment of the requirements for admission to the Graduate School, and also the particular requirements of undergraduate and graduate preparation for the field of study in which the student wishes to specialize. Unconditional admission to candidacy for an advanced degree involves a suitable period of graduate work in residence in which the student demonstrates his ability to do work of graduate caliber. Detailed information concerning candidacy for the Master's Degree and the Doctor's Degree may be found on the pages immediately following.

2. REQUIREMENT TO TAKE GRADUATE RECORD EXAMINATION

Students admitted to the Graduate School to begin a course of study for a degree or for teacher certification after September 1, 1962 will be required to submit scores in the general aptitude test of the Graduate Record Examination. The student's scores in the aptitude test will not affect his admission to or standing in the Graduate School. However, an individual department offering graduate work may consider both aptitude scores and the score in the appropriate advanced test of the Graduate Record Examination in deciding whether to admit a graduate student as a candidate for a degree in the department.

Students should arrange to take the general aptitude test and, if required by the major department, the appropriate advanced test of the Graduate Record Examination prior to their first registration at the University and should request the Educational Testing Service to forward their scores to the Dean of the Graduate School. Students who are unable to do this will be admitted to the Graduate School provisionally and will be required to take the Graduate Record Examination on the first date that it is offered on the West Virginia University campus, or elsewhere, after their admission, unless an extension of time is allowed by the graduate dean.

Information as to dates when the graduate Record Examination will be offered on the West Virginia University campus can be obtained from the Graduate School Office. The fee for the aptitude examination is $7.00; for an advanced test $8.00; for both examinations $12.00

Those planning to take the examination must apply to the Educational Testing Service, Princeton, New Jersey, at least fifteen days prior to the date of the examination.

3. SCHOLARSHIP

No credits are acceptable toward an advanced degree which are reported with a grade lower than "C."

Reasonable standards of oral and written English must be maintained.

4. CURRICULUM

Credit toward a graduate degree may be obtained only for courses listed in the *Announcements* of the Graduate School numbered 200-399.

No more than 15 hours of graduate courses in any one semester nor more than 6 hours of graduate courses in any term of the Summer Session may be carried by a student. Any exception to this rule must be approved in advance by the Dean of the Graduate School.

5. RESIDENCE AND EXTENSION

Residence credit for special field assignments and for work taken off the University campus shall be allowed only with prior approval of the Dean.

No more than 15 hours of extension work may be counted by any one student toward the Master's Degree.

For majors in Education no more than 15 hours by extension may be counted toward the Master's Degree and of these 15 no more than 8 hours may be obtained before the student completes at least 6 hours in residence on campus.

Full-time in-service teachers may obtain no more than 9 semester hours of credit toward the Master's Degree in any one academic year.

The maximum credit that students pursuing graduate work by extension may receive in any one field shall be 8 semester hours.

No more than 6 hours of graduate credit obtained in other approved institutions may be considered in meeting the requirements for the Master's Degree at West Virginia University.[1] Approval in writing must be secured in advance to elect graduate courses offered elsewhere. Credit will not be established here until the student has successfully completed at least 12 semester hours of graduate work at West Virginia University. Graduate credits so accepted toward the Master's Degree must meet the usual departmental requirements for a continuous and unified program of graduate study and will reduce correspondingly the number of hours of graduate work by extension offered in West Virginia University extension centers that may be offered in meeting the requirements for the Master's Degree.

No credits earned by extension prior to the admission of the student to graduate work and acceptance for graduate study may be counted toward meeting the requirements for the Master's Degree. However, seniors in the colleges of West Virginia University and in colleges where West Virginia University offers graduate courses by extension who are within 10 semester hours of graduation may, with the approval of the Dean of the Graduate School, enroll for graduate courses for which they may receive graduate credit after obtaining their bachelor's degrees. Such graduate courses must not have been offered for undergraduate credit, and in every case permission must have been requested before or at the time of enrolling for the course or courses. Normally, the maximum amount of credit avail-

[1]This regulation applies to all master's degrees based upon a total credit requirement of 30 to 46 semester hours. The degree of Master of Social Work is based upon a total credit requirement of 54 to 60 semester hours, 24 to 30 of which may be transferred under suitable conditions, but the last 30 of which must be earned and completed in West Virginia University.

able to a senior by petition in this manner before he completes all requirements for the bacculaureate degree and gains admission to the Graduate School will be 15 semester hours.

Each graduate student in residence, whether taking course work or engaged in conducting research or in writing a thesis or report, must register at the beginning of each semester or term during which graduate work is being done. He must be registered during the session in which he is to appear for final examination. Under exceptional conditions and with the prior approval of the Dean a graduate student may be permitted to meet a portion of the requirements for the degree in absentia, provided the customary residence and other requirements are met.

6. LIMITATION OF CREDIT LOADS FOR EMPLOYED GRADUATE STUDENTS

Graduate students will be required by their advisers to limit their credit loads in proportion to the outside service rendered and the time available for graduate study. In general, persons in full-time service to the University, or other employer, will be advised to enroll for no more than 6 hours of work in any regular semester or 3 hours in any 5-week summer term. Maximum credit loads for students who are employed are:

Basis of Employment	Maximum Credit Load Per Semester	Maximum Credit Load Per Summer Term of Five or Six Weeks
Full-time employees	6	3
Three-fourths-time employees	9	3
Half-time employees	12	4
One-fourth-time employees	15	5

Part-time students employed on a basis other than those listed will be advised to take credit loads in relative amounts.

7. THESES AND PROBLEM REPORTS

All theses and problem reports shall be presented in the form prescribed at least one month previous to the Commencement Day on which the degree is expected. If the thesis or problem report is accepted, typewritten and bound copies shall be submitted to the Office of the Graduate School at least one week before the degree is to be conferred; a minimum of five copies of the master's thesis and doctor's dissertation, or four copies of the problem report, is required.

8. FINAL EXAMINATIONS

The candidate shall not be eligible for the final examination until his thesis or problem report has been approved by the examining committee. Following approval of the candidate's thesis or problem report and satisfactory completion of the courses in residence and satisfaction of other graduate requirements, he shall be given a final examination by his advisory committee. Examining committees for theses and for final examinations for advanced degrees shall contain no fewer than three members for candidates for the Master's degree, and no fewer than five members for candidates for the Doctor's degree. In order to have his thesis accepted or to be considered as having satisfacorily passed his examination, the candidate shall have no more than one unfavorable vote in each case.

9. REQUEST FOR DEGREE

At the time of registration for the semester or session in which the candidate expects to receive a graduate degree, he shall submit a formal request to the Dean of the Graduate School for the conferring of such degree. The candidate must have completed all requirements for the degree which he wishes to receive, at least one week before Commencement Day.

10. COMMENCEMENT ATTENDANCE

Candidates for degrees to be conferred at the close of the second semester are expected to be present in person to receive their degrees.

The Degrees of Master of Arts and Master of Science†

REQUIREMENTS FOR CANDIDACY

Satisfactory fulfillment of General Regulation No. 1 for graduate degrees will admit an applicant to candidacy.

REQUIREMENTS FOR COMPLETION

The completion within a period of seven years[2] immediately preceding the conferring of the degree, except with the permission of the Dean, of no less than 30 credit hours of graduate work approved by the adviser.

Residence: A minimum of two semesters is required, or one semester and three summer terms, or five summer terms of residence in full-time graduate study at West Virginia University. For students offering 15 credit hours in extension, a minimum period of residence at West Virginia University of one semester or three summer terms shall be required for the Master's Degree.

Program: In general, when a thesis is offered, the program will consist of 24 hours or more of suitable course work and 1 to 6 hours of thesis or research.

Thesis or Problem Report: A thesis or problem report granting no more than 6 hours of credit may be required by the faculty of the college, school, or department in which the candidate's major interest lies.

Final Examination: An examination, oral or written or both, at the option of the candidate's examining committee, shall be required, covering the candidate's thesis or problem report, studies in his major and minor fields, and his ability to apply facts and principles.

Special Requirements: The candidate must meet the special requirements of the department in which he pursues his major study.

The Degrees of Master of Agriculture and Master of Home Economics

Requirements: The requirements for and regulations governing the granting of these two degrees are the same as those for the degree of Master of Science with the following exceptions:

1. Candidates for the degree of Master of Agriculture and Master of Home Economics shall have previously completed the requirements for the degree of Bachelor of Science in Agriculture or Bachelor of Science in Home Economics, or their equivalents.

2. A research thesis shall not be required, but a problem report on some phase of agriculture or home economics shall be required. Not more than 3 semester hours of credit may be allowed for the problem report, which must be approved by the student's committee. The report must be submitted in the form prescribed by the regulations of the Graduate School.

†Major and minor work toward the master's degree is offered by most of the departments and divisions of the University. Offerings of these divisions and departments are given in this section of the **Catalog.**

[2]This ruling was discontinued temporarily during the war period. It was reinstated, effective June 1, 1948, as follows:

Beginning with the first summer term of 1948, the seven-year rule was again put into effect with the provision that, in the cases of students who have already started their graduate programs, the adviser and the Dean of the Graduate School will determine whether work taken before the seven-year period shall be accepted for credit. If the adviser and the Dean cannot agree, the case shall be brought before the Executive Committee for review. In the event that a graduate student began work during the war period, an extension up to a maximum of five years may be granted.

3. The program of work shall be such that the emphasis will be on breadth of knowledge in the field of agriculture or home economics, as the case may be, rather than upon study in one narrow field of science. To insure such breadth of training, the student must take work in at least five subject-matter fields. Not more than 10 credits will be accepted in any one field and not more than 10 credits from other colleges in the University will be accepted.

4. Special regulations may be made by the subject-matter division concerned, and approved by the Dean of the Graduate School.

The Degree of Master of Social Work

REQUIREMENTS

The degree of Master of Social Work is conferred by the University upon those students satisfactorily completing the requirements as established by the Graduate School. These requirements are:

1. Broad pre-professional training including not fewer than 24 hours of undergraduate work in the social sciences.
2. Completion of graduate courses approved by the Department of Social Work totaling not fewer than 54 semester hours, of which the last 30 hours shall have been completed in West Virginia University.
3. Completion of 20 semester hours of supervised field work under faculty direction.
4. Completion of a problem report.
5. Demonstration of competency in the theory and practice of social work to the satisfaction of the faculty of the Department. This will include passing with a satisfactory grade a comprehensive final examination, which may be oral or written, or both, at the discretion of the Department. The degree will not be awarded solely for credits earned.

For most students the requirements for the degree of Master of Social Work can be met in two full years of study.

Interdepartmental Programs

Industrial Relations. Degree: Master of Science.
Rehabilitation Counseling. Degree: Master of Science.

The Certificate of Advanced Study in Education

REQUIREMENTS

This is a distinct and terminal program including one full year of graduate study beyond the Master's Degree. The program is open to school administrators, supervisors, counselors, and teachers who furnish evidence of significant and appropriate teaching experience or closely allied educational work. The requirements for the certificate are: completion of 30 approved semester hours in residence earned after the conferring of the Master's Degree, including 6 to 12 semester hours of research. Persons expressing a desire to pursue the program leading to the certificate must satisfy a College of Education faculty committee on prerequisites.

The Degree of Doctor of Philosophy

REQUIREMENTS FOR CANDIDACY

Admission to the Graduate School and enrollment in graduate courses does not of itself imply acceptance of the applicant for a Doctor's Degree. After a period of residence the applicant will be admitted to a comprehensive preliminary or qualifying examination (either oral, or written, or both) in which he must demonstrate: (a) a grasp of the important phases and problems of the field of study in which he proposes to major and an application of their relation to other fields of human

knowledge and accomplishments; (b) the ability to employ rationally the instruments of research that have been developed in his major field; and (c) the ability to read French and German in a satisfactory manner.[3]

When an applicant has successfully passed his qualifying examination he will be formally promoted to candidacy for the Doctor's Degree. Admission to candidacy must precede the final examination for the Doctor's Degree by at least one academic year. Graduate courses pursued in fulfillment of the requirements for the Master's Degree, if of suitable character and quality, may be credited toward the doctorate.

REQUIREMENTS FOR COMPLETION

(a) *Curriculum*: The Degree of Doctor of Philosophy is not awarded for the mere accumulation of course credits nor for the completion of a definite residence requirement. The exact amount and nature of course work to be undertaken by a candidate will be determined in light of his previous preparation and the demands of his chosen field of application. The aggregate of correlated courses of graduate instruction should, however, be no less than 60 semester hours, exclusive of research or thesis, except research or thesis credits earned for the Master's Degree. These credits shall be ordered and distributed so as to promote broad and systematic knowledge and the ability to carry on independent research.

(b) *Residence*: In general, the requirements for the degree of Doctor of Philosophy contemplate at least three years of full-time graduate work beyond the Bachelor's Degree. A minimum of two semesters of residence in full-time graduate study, or its equivalent, at West Virginia University is required.

(c) *Thesis*: The candidate must submit a thesis pursued under the direction of the faculty of this University on some problem in the field of his major interest. The thesis must present the results of the candidate's individual investigation and must embody a definite contribution to knowledge.

(d) *Special Requirements*: The candidate must satisfy such special requirements, subject to approval of the Dean of the Graduate School, as may be required by the faculty of the college, school, or department in which his major lies. All required examinations in modern languages shall be taken not later than one academic year before the final examination for the degree.

(e) *Final Examination*: If the candidate's thesis is approved and he has fulfilled all other requirements stated above, he will be admitted to final oral examination on his thesis before his examining committee. At the option of this committee, a comprehensive written examination also may be required.

NOTE: Departments offering the Degree of Doctor of Philosophy are: Agricultural Biochemistry and Nutrition, Agronomy and Genetics, Biology, Chemical Engineering, Chemistry, Geology, History, Philosophy and Psychology, Physics, Plant Pathology, Bacteriology, and Entomology, Political Science, Medical Biochemistry, Microbiology, Pharmacology, Physiology, Gross and Neurological Anatomy, the School of Music, and the College of Engineering.

The Degree of Doctor of Education

This is a professional degree open to school leaders, administrators, teachers, and counselors who furnish evidence of significant and appropriate teaching experience. Persons expressing a desire to pursue the program leading to this degree must satisfy a College of Education faculty Committee on Prerequisites.

[3]In determining the candidate's proficiency in the two requisite foreign languages the major department must choose one of the following procedures:

(1) The examination may be conducted by the appropriate language department, or

(2) The examination may be conducted by a committee of three members—one member from the candidate's major field, one member from a related subject-matter field, and one member from the appropriate language department.

With the approval of the Dean of the Graduate School, one other language may be substituted for French or German.

The School of Journalism

GENERAL INFORMATION

A University newspaper, forerunner of the present *Daily Athenaeum*, began publication November 9, 1887. The first journalism instruction at West Virginia University consisted of a two-hour course in news writing offered in 1915 in the Department of English of the College of Arts and Sciences. The same department by 1920 offered more journalism courses, and in 1927 a separate Department of Journalism was established, built around a full professional curriculum.

The Board of Governors on April 22, 1939, separated the Department of Journalism from the College of Arts and Sciences and reorganized it as a School of Journalism, with an administrative status similar to that of other schools and colleges of the University. Five full-time professors, four part-time lecturers, and four graduate assistants now comprise the journalism staff.

In observance of the 25th anniversary of the School's founding, special lectures, workshops, and discussions are scheduled for the Spring of 1964.

Accreditation

The School of Journalism has been accredited by the American Council on Education for Journalism for the Advertising-Management and News-Editorial sequences. A.C.E.J. approval is held by only 47 colleges and universities.

The quality of the School's program also has been recognized by memberships in the American Association of Schools and Departments of Journalism and the American Society of Journalism School Administrators.

Aims

The School of Journalism's objectives are:

1. To recruit men and women capable of serving the public interest through careers in journalism.

2. To help these young people achieve proficiency in the techniques employed in reporting, editing, and administering newspapers and other publications, and in the skills of advertising and radio-television journalism.

3. To make it possible for them to acquire, through a liberal arts background as well as their professional studies, that understanding of society's problems which is essential for effective leadership in any field.

4. To acquaint them with the responsibilities which must be assumed by communications specialists, and with the opportunities which are available.

6. To carry on systematic research pertaining to problems in the field of communications.

7. To serve the citizens and communications media of West Virginia and the nation to the fullest extent that the abilities of students and staff members will permit.

Standards

From the beginning, instruction in journalism at West Virginia University has been in accord with the best professional school standards. Emphasis has been on quality, not numbers.

Staff members have been engaged with careful attention to their individual ability to give expert instruction in particular fields. Course offerings are changed from time to time to correspond to progressive changes in the profession. Class sizes have never reached proportions where individual instruction has had to be sacrificed. The School conforms to recognized national standards.

Location and Equipment

The School of Journalism, after being housed in Woodburn Hall for more than 32 years, moved into Martin Hall in 1953, where it occupies almost the entire building.

With its basement and three stories, Martin Hall has the equivalent of 32 standard-size classrooms, 29 of which provide the School with lecture rooms, an audio-visual classroom, an auditorium seating almost 200 persons, a front business office and advertising seminar room, an advertising layout laboratory, a typographical laboratory, a newsroom, reading room, photography laboratory and engraving rooms, a radio-television laboratory, an advertising laboratory, a public relations and industrial journalism laboratory, a room for the West Virginia Journalism Hall of Fame, and offices for the instructional and editorial staffs.

In many respects the rooms devoted to instruction in newspaper editing and publishing are equipped like the editorial and business quarters of a large weekly or small-city daily newspaper. The newsroom contains a U-copy desk, work tables and desks, telephones, and 25 typewriters. There are teletypewriters on which United Press International and Associated Press dispatches are received from 2 P.M. to midnight daily. These reports are edited by journalism majors working under the supervision of faculty members.

The adjacent reading room contains newspapers, magazines, and some reference works. It receives daily representative newspapers and magazines of the nation as well as almost all West Virginia dailies and weeklies. It makes available for study about 40 dailies, many weeklies, a number of the standard magazines, and a collection of high school and college papers. The school subscribes to the important special periodicals of the profession.

For instruction in typography and advertising production, a laboratory has been equipped not only for providing demonstration material but also for giving the individual student practice in the setting and adaptation of type. The advertising-layout laboratory is supplied with special tables and desks for applied instruction. The facilities of the photography laboratory include those fundamental pieces of equipment essential to basic camera-print techniques. The school's radio-television laboratory is in 300 Martin Hall. Here, too, the school's telephone reporting laboratory is housed. In addition to such basic items as tables, typewriters, and telephones, the room has a 21-inch television receiver and a radio receiver which can receive both standard and short-wave broadcasts. Other equipment used in training students in broadcast journalism includes 16-mm. motion picture cameras, a 16-mm. motion picture projector, film editors with splicing units and viewers, and standard tape recorders. The School offers comprehensive programs of instruction in industrial publications and public relations. To introduce students to the limitations and possibilities of type, the School also has one Linotype and a medium-sized automatic Heidelberg platen press.

The journalism building also contains the office of the West Virginia Press Association, which makes available certain publications, periodicals, information, and other materials from its files and records.

Additional opportunities for observation and practice, especially in the business and mechanical aspects of newspaper work, are provided at the plant of the West Virginia Newspaper Publishing Company in Morgantown, where the *Daily Athenaeum,* the student newspaper, is printed under contract.

Practice Opportunities

Opportunities for applying the principles of sound newspaper and radio-television practice are good. The *Daily Athenaeum,* a four-day campus newspaper, is produced by journalism students in laboratories conducted from 3 to 5:30 P.M. and from 7 to 11 P.M. daily except Friday, Saturday, and Sunday. Reporters cover the University community thoroughly. Trained deskworkers not only edit the local reporters' copy but also prepare for publication the dispatches of state, national, and world origin received on the United Press International and Associated Press wires. Local pictures are taken by the newspaper's staff photographers, and other news pictures are selected from mats purchased from a national distributor.

All reporters serve as correspondents of weekly and daily newspapers. Majors pursuing the advertising-management sequence are required to spend no fewer than five hours a week during one semester soliciting advertising accounts for the campus daily, writing copy, and otherwise servicing their accounts, and making collections for the advertising sold.

Some students get additional practice by working part-time for Morgantown dailies or by taking vacation positions on newspapers of their home communities. Majors are especially urged to obtain vacation work on a good weekly or daily newspaper during the summers that precede their junior and senior years. As a rule, student journalists have staff positions on, or are regular contributors to, other campus publications.

Under a formal state-wide intern training program which became effective in 1959, students with at least a 2.0 average in all subjects and a 3.0 average in journalism courses, or who have special consent, are employed by West Virginia newspapers for a 10-12 week period during the summer at a salary of $50 per week. These internships are available to students in the summers preceding their junior and senior years.

Training for students preparing for jobs in radio and television is conducted along workshop lines. In the radio courses, these students produce newscasts at local broadcasting stations under supervised laboratory conditions. In the television courses they function as "film stringers" in covering University and Morgantown events.

In their radio labs, the students are responsible for gathering and writing the news for news programs and their work is evaluated during class meetings in Martin Hall. While the main purpose of this work is to develop writing ability, meaning the ability to present information in a conversational manner, students also have an opportunity to acquire some broadcasting experience.

Most of the students' television work involves production. When they have mastered the principles of motion picture photography, they apply TV techniques to these principles in "dry run" assignments. Later, they have an opportunity to shoot regional news events for television stations requesting film coverage. Film editing and splicing techniques are stressed during the lab periods.

The Placement of Graduates

During the last four decades, alumni who completed all or most of the professional courses in journalism have found little difficulty in finding desirable positions. Although the school cannot guarantee positions to graduates, it is glad to assist them in learning of openings and making contact with employers. To this end it maintains without charge a placement register for both current and past graduates. Students and alumni also are invited to make free use of the University Placement Service.

Courses Open to Non-Journalism Majors

The School of Journalism desires to share its knowledge of the philosophy, history, principles, practices, and techniques of journalism and mass communications with all University students, regardless of major study, who desire to elect courses or to minor in the field. Many courses, as indicated in the list published in the School of Journalism *Announcements*, are open to non-majors.

Proficiency in English

Regular students of the University or transfers from other colleges and universities are expected to speak and write the English language with a marked degree of correctness. This means that in their English composition courses they should have achieved a standing of approximately "B" or higher. If upon entering the School of Journalism a student is found deficient in English he will be required to take one or more additional courses in fundamental composition.

Typewriting

Before or soon after entering the University, a student planning to become a journalism major should learn the touch system of typing. From the beginning every reporter is expected to submit copy in neat typewritten form. If the reporter cannot demonstrate such typing ability, he may be asked to withdraw from the reporting course. He will find it advantageous to have his own machine.

The West Virginia Fourth Estatesman

The *West Virginia Fourth Estatesman* is a periodical published quarterly by the School of Journalism as a professional public service. Since it was founded in 1941, the *Fourth Estatesman* has disseminated journalistic news and digests of technical and special lectures delivered frequently to the student body of the School. It is sent free to the communications media of the State, to high school journalism teachers, and the School alumni.

REQUIREMENTS FOR THE DEGREE

THE BROAD EDUCATIONAL BACKGROUND

The School of Journalism emphasizes a strong liberal arts background for its students. Curricula are arranged so that students devote approximately 75 per cent of their study to broad liberal arts subjects and 25 per cent to professional courses in journalism.

This philosophy of journalism education is in accord with what appears to be the best current thought in both educational and professional circles, and it is the goal of the American Council on Education for Journalism.

It is enunciated by requiring a minimum of 30 hours, and a maximum of 33, in journalism within the first 128 hours offered for the B.S.J. degree, and by insistence on a "content" field of study as a minor. In addition to learning certain techniques and gaining journalistic knowledge and insights, students in their journalism courses are enabled to synthesize and bring into sharp focus the knowledge gained in all their university studies. The content of at least half their courses in journalism lies well within the area of general knowledge leading to sound citizenship and enriched living, regardless of their future career roles. They develop skills of communication; gain an understanding of the nature of major local, state, national, and world problems and of the role of mass media in the democratic process; learn to evaluate intelligently both news and opinion as expressed through print and broadcast journalism, and in fact, become alert, informed consumers, as well as producers, of news and views upon which decisions are generally made in a democracy.

Among the foundation courses that receive special attention are these: the English language and literature; foreign language; theoretical and applied economics and business administration; national, state, and local government and the governmental systems of foreign countries; American politics and international relations; the problems of management and labor and their social implications; American and European history; philosophy, psychology, and natural science. Persons capable of producing newspapers or broadcasting news events and their interpretation with which today's readers and listeners will be satisfied must be thoroughly informed about all aspects of the modern world. They must also know the art and science of the best journalistic practice.

BACHELOR OF SCIENCE IN JOURNALISM

A candidate who has satisfied all general requirements of the University and who as a regularly enrolled student of the School of Journalism has earned 64 semester hours of credit, of a value specified in the "Scholastic Requirements" section, and in the subjects listed in one of the professional curricula hereinafter outlined, will be recommended for the degree of Bachelor of Science in Journalism or Bachelor of Science in Journalism Education, provided the combined number of his credits acquired as a pre-journalism student and as a regularly enrolled journalism major totals no fewer than 128.

As a minimum professional requirement, 22-25 of the 64 semester credits earned after the student has enrolled in the School of Journalism must be obtained in journalism subjects. No fewer than 40 of the 64 semester credits shall be obtained in courses numbered between 100 and 300. Further, no student will be permitted to offer fewer than 30 nor more than 33 hours of journalism courses in the 128 semester credits required for the degree.

Students who have earned less than a 2.25 cumulative average may be admitted to the School of Journalism providing their applications are approved by the School of Journalism's Committee on Scholarship. However, any student earning less than 2.25 average in a given semester, after admission to the School of Journalism, is automatically placed on probation and limited to a course load of no more than 14 hours the following semester. Failure to meet the scholastic requirements set forth in this bulletin will lead to suspension from the School of Journalism.

Minimum and Maximum Work

A student, admitted to the School of Journalism, who wishes to carry less than 14 hours of course work in a given semester, must petition the School's scholarship committee for permission to do so. A journalism major may register for no fewer than 14 hours and, normally, no more than 17 hours per semester. To carry 18 hours, a student must have maintained a "B" average or higher during the preceding semester; however, even students with "B" or higher averages must petition the scholarship committee if they wish to carry *more* than 18 hours any semester. Students earning less than a "B" average the preceding semester must petition the committee for permission to carry more than 17 hours any semester.

Foreign Languages

To be eligible for the B.S.J. degree, a student must have completed 12 semester hours in one language in college; or he must have offered two units in a foreign language for entrance and must have completed 6 hours in the same language in college, above courses numbered "1" and "2."

An advertising major may substitute a *Marketing Minor* for the Foreign Language requirement stated above. However, any advertising major contemplating graduate work is strongly advised to select the foreign language option.

Natural or Physical Sciences

A candidate for the degree must have acquired eight hours in one of the following natural sciences: biology, botany, chemistry, geology, physics, and zoology, or eight hours in the physical sciences.

Exemption from Requirements

Exemption from any professional course because of practical newspaper experience that a student may have had will be granted only after the student has submitted satisfactory evidence as to the nature and quality of the experience. For such exemptions approved advanced courses shall be submitted. Credit toward a degree can be granted for practical work only when it has been done under the supervision of an accredited instructor.

Professional Advisers

A staff member serves as adviser in each curriculum with the Dean acting as general adviser for all journalism students. Not only juniors and seniors, but pre-journalism freshmen and sophomores as well, should consult him about all scholastic and curricular problems that may arise.

Scholastic Requirements

Graduates of the School of Journalism are expected to be not only citizens of good manners, of honorable and upright character and of respect for other people

and their ideas, but alert individuals of better-than-average intellectual attainments. It is urged, therefore, that all candidates for a degree aspire to earn at least three times as many grade points as they have credit hours. To be eligible for graduation, a student must earn as a minimum a cumulative average of 2.25 grade points with at least an over-all 2.5 average for journalism work, or a minimum of 288 grade points for 128 hours of academic work, if all credit is earned at West Virginia University.

In addition to the general experience each journalism major will obtain on the *Daily Athenaeum* in connection with required or elective courses, no major will be approved for graduation unless during either his junior or senior year he has served for not less than one semester in some editorial or executive capacity on the *Daily Athenaeum*, or unless he has offered in place of this service a substitute project approved by his adviser.

No student will be recommended for the degree unless he has shown to the satisfaction of the faculty that he possesses abilities and qualities which give promise that he can do adequate work in professional journalism.

PRE-JOURNALISM CURRICULUM

The School of Journalism has designed the principal courses in which a pre-journalism freshman and sophomore should enroll in order to help him fulfill the desired program leading to the degree of Bachelor of Science in Journalism. These courses offer the student an introduction to several fields from which he later will select his minor.

FIRST YEAR	*Hr.*
English 1 and 2—Composition and Rhetoric	6
History 1 and 2 or Humanities 1 and 2	6-8
Natural or Physical Science	8
*Foreign Language	6
Journalism 1—Introduction to Mass Communications	2
Journalism 2—Lectures in Journalism	1
Physical Education	2
Military or Air Science 1 and 2	4
Electives as needed	

SECOND YEAR	*Hr.*
Journalism 18—News Writing	3
Journalism 19—Copy Editing and Makeup	3
History 52—Growth of American Nation to 1865	3
History 53—Making of Modern America 1865 to Present	3
*Foreign Language (if needed)	6
English 6—American Literature	3
English 4 or 164—English Literature	3
Economics 1 and 2—Principles of Economics	6
Military or Air Science 3 and 4	4
Physical Education (Women)	2
Electives as needed	

THE MINOR FIELD

To meet the requirements for a minor, a student must earn at least 15 semester credits in some subject other than journalism, 12 of which must be in courses numbered 100-199 or 200-299. For students pursuing two minors simultaneously, the requirement in each area is at least 12 semester credits, of which 9 must be in upper-division courses (those numbered above "100"). The first minor must be in a "content" area of study. Minor fields especially recommended for all journalism students are economics, history, English, political science, and sociology. In addition, commerce is recommended for Advertising-Management, Public Relations, and Technical Journalism majors; and agriculture, the natural sciences, life sciences, and engineering are recommended for Technical Journalism majors.

Students in other areas of study who desire to minor or take extensive electives in journalism are welcome and will be given special counseling to obtain the information and skills which they desire. Such students should consult with both their own advisers and the Dean of the School of Journalism regarding the journalism courses in which they are to enroll.

*Advertising majors may substitute a Marketing Minor for the Foreign Language requirement. Accounting 1 and 2 are required for Management majors, may be elected by Advertising majors.

Curricula

The School of Journalism offers five curricula designed to equip students for specialized branches of journalism practice or for occupations or professions for which journalistic training is desirable or necessary preparation. Each sequence leads to the degree of Bachelor of Science in Journalism.

ADVERTISING-MANAGEMENT CURRICULUM

This is a sequence designed to prepare students for careers in creative advertising, advertising sales, and newspaper management.

THIRD YEAR	*Hr.*
*Accounting 1 and 2—Principles of Accounting	6
**Psychology 1—Introduction to Psychology, or Philosophy 104—Introduction to Philosophy	3
Pol. Sci. 2—American Federal System	3
Marketing 111—Principles of Marketing	3
Marketing 115—Principles of Retailing	3
Journalism 110—Typography and Printing Processes	2
Journalism 113—Principles of Advertising	3
Journalism 115—Advertising Copy and Layout	2
Electives as needed	

FOURTH YEAR	*Hr.*
Journalism 101 or 201—Intrepreting Current Events	1
Journalism 108—The Community Newspaper	2
Journalism 109—Applied Newspaper Management	2
Journalism 114—Newspaper Advertisement Selling	2
Journalism 239—Seminar in Advertising Problems	2
Electives as needed	

Advertising-Management majors will elect from 5 to 8 additional hours in journalism from the following courses: Journ. 116, 118, 119, 120, 122, 124, 170, 212, 227, and 230.

NEWS-EDITORIAL CURRICULUM

This is a sequence intended primarily for those who wish to prepare themselves for writing or editing positions with newspapers.

THIRD YEAR	*Hr.*
Psychology 1—Introduction to Psychology, or Philosophy 104-Introduction to Philosophy	3
Pol. Sci. 2—American Federal System	3
Pol. Sci. 120—State and Local Government	3
Journalism 101 or 201—Interpreting Current Events	1
Journalism 118—Reporting	3
Journalism 119—Advanced Editing and Makeup	3
Journalism 120—News Photography	2
Electives as needed	

FOURTH YEAR	*Hr.*
Journalism 227—History of Journalism	3
Journalism 128—Reporting of Public Affairs	2
Journolism 230 and 235—Editorial and Law of the Press	4
Electives as needed	

News-Editorial majors will elect from 3 to 6 additional hours in journalism from the following courses: Journ. 108, 110, 113, 122, 123, 170, 212, and 220.

**Psychology 1 is required of Advertising majors. Management majors may elect either Psychology 1 or Philosophy 104.

PUBLIC RELATIONS CURRICULUM

This sequence is designed for students who wish to prepare for work in a public relations firm or public relations department, or for the position of information specialist in business, industry, organized labor, government, education, welfare agencies, or the armed services.

THIRD YEAR	Hr.
Journalism 110—Typography and Printing Processes	2
Journalism 113—Principles of Advertising	3
Journalism 118—Reporting	3
Pol. Sci. 120—State and Local Government	3
Psychology 1—Introduction to Psychology	3
Psychology 216—Attitudes and Propaganda	3
Speech 11—Public Speaking	3
Electives as needed	

FOURTH YEAR	Hr.
Economics 115—Labor Problems	3
Journalism 120—News Photography	2
Journalism 101 or 201—Interpreting Current Events	1
Journalism 212—Public Relations	3
Journalism 213—Industrial Journalism	2
Journalism 230—Editorial and Law of the Press	2
Electives as needed	

Public Relations majors will elect from 3 to 6 additional hours in journalism from the following courses: Journ. 119, 122, 123, 124, 125, 220, and 235.

RADIO-TELEVISION CURRICULUM

This sequence is designed for students who want to work in the news and information areas in the broadcasting field. Course offerings are geared to the needs of those desiring to prepare for such positions as radio-TV news reporter, newscaster, and news executive; TV news cameraman; wire service radio editor; and station salesman, or commercial copy writer.

THIRD YEAR	Hr.
Journalism 118—Reporting	3
Journalism 120-News Photography	2
Journalism 122 and 123—Radio and Television Reporting	4
Psychology 1—Introduction to Psychology, or Philosophy 104—Introduction to Philosophy	3
Pol. Sci. 2—American Federal System	3
Electives as needed	

FOURTH YEAR	Hr.
Journalism 101 or 201—Interpreting Current Events	1
Journalism 116—Radio-Television Advertising	2
Journalism 124—Television News Photography	2
Journalism 125—Television Film Reporting and Editing	2
Pol. Sci. 120—State and Local Government	3
Electives as needed	

Radio-Television majors will elect 5 to 8 additional hours in journalism from the following courses: Journ. 113, 119, 128, 212, 213, 220, 227, 230, 235.

TECHNICAL JOURNALISM CURRICULUM

This is a sequence designed to enable a student to obtain proficiency in journalism while acquiring extensive knowledge in some secondary technical area, such as agriculture, home economics, the medical sciences, the natural sciences, or commerce.

THIRD YEAR

	Hr.
Psychology 1—Introduction to Psychology, or Sociology 1—Introduction to Sociology	3
Pol. Sci. 2—American Federal System	3
Journalism 101 or 201—Interpreting Current Events	1
Journalism 118—Reporting	3
Journalism 119—Advanced Editing and Makeup	3
Journalism 220—Newspaper and Magazine Article Writing	2
Electives as needed	

FOURTH YEAR

	Hr.
Journalism 110—Typography and Printing Processes	2
Journalism 212—Public Relations	3
Journalism 213—Industrial Journalism	2
Electives as needed	

Technical Journalism majors will elect from 5 to 8 additional hours in journalism from the following courses: Journ. 119, 120, 122, 123, 124, 125, 227, 230, and 235.

PROGRAM FOR PROSPECTIVE HIGH SCHOOL JOURNALISM TEACHERS

Students may obtain the Bachelor of Science in Journalism Education degree and also qualify for a first-class professional certificate in West Virginia with teaching fields in English and social studies, and a minor teaching field in journalism, Grades 7-12, by taking the following course of study:

FIRST YEAR

	Hr.
English 1 and 2	6
History 1 and 2 or Humanities 1 and 2	6-8
Social Science 1 and 2	8
General Biology 1 and 2, or Physical Science 1 and 2	8
Journalism 1 and 2	3
Physical Education	2
Military or Air Science 1 and 2	4

SECOND YEAR

	Hr.
English 3 and 4, or 163 and 164	6
English 5 and 6	6
Journalism 18 and 19	6
Political Science 2	3
History 52 and 53	6
Education 105	3
Military or Air Science 3 and 4	4
Physical Education (women)	2

THIRD YEAR

	Hr.
Journalism 118 and 119	6
Journalism 110 and 120	4
Economics 1	3
Education 106	3
Education 109, or approved elective	2
Music 10	2
Speech 3, 6, 11, or 29	3
Sociology 1 or 104	3
Art 30 or 130	2
Health Education 101	2
Geography 107 or 109	3

FOURTH YEAR

	Hr.
Literature	6
History 150 or 250	3
Journalism 227	3
Journalism 215	2
Journalism 230 and 235	4
Journalism 101 or 201	1
Journalism 212	3
Social studies, upper division, elective	3
Education 124	6
Education 120	4
Education 150-170	2

MINOR IN TEACHER TRAINING IN JOURNALISM FOR NON-JOURNALISM MAJORS

For students in other schools and colleges following one of the University's teacher-training programs, the School of Journalism has set up a teaching minor in journalism. The program is intended for persons who plan to be advisers for high school newspapers and yearbooks as well as teachers.

This minor requires a minimum of 16 hours in journalism (only 14 hr. additional for those whose first teaching field is English, since Journ. 215 is included in that program). It includes the following courses:

REQUIRED COURSES

	Hr.		Hr.
Journ. 1—Introduction to Mass Communications	2	Journ. 215—High School Journalism	2
Journ. 18—News Writing	3	Journ. 227—History of Journalism	3
Journ. 19—Copy Editing and Makeup	3		
Journ. 113—Principles of Advertising	3		

RECOMMENDED COURSES FOR ADDITIONAL CREDIT

Journ. 108—The Community Newspaper	2	Journ. 212—Public Relations	3
Journ. 110—Typography and Printing Processes	2	Journ. 220—Newspaper and Magazine Article Writing	2
Journ. 120—News Photography	2	Journ. 230 and 235—Editorial and Law of the Press	4

ELECTIVE COURSES IN JOURNALISM FOR STUDENTS IN TEACHER-TRAINING PROGRAMS

Students in other schools and colleges following one of the University's teacher-training programs may elect any of the courses in journalism *listed above.* Journalism 18 is a prerequisite for Journalism 19. History 52 and 53 are prerequisites for Journalism 227. All other courses may be taken without prior journalism study.

PROGRAM FOR PROSPECTIVE JOURNALISM TEACHERS IN COLLEGES AND UNIVERSITIES

The student should obtain the Bachelor of Science in Journalism degree, then acquire a master's degree in the field, either before or after obtaining some practical experience with the media. The doctorate is essential to fullest advancement.

GRADUATE STUDY

The School of Journalism offers work leading to the degree of Master of Science in Journalism, as well as a graduate minor for students taking the master's degree in a field related to journalism. Graduate students may also elect journalism courses.

Admission. In order to be admitted to the Master of Science in Journalism program, the student must have a baccalaureate degree in journalism or must demonstrate competency in a minimum number of areas prescribed by the School of Journalism. The prospective student also must have had a 3.0 average in undergraduate journalism courses. In compliance with a Graduate School regulation, all students planning to work for a M.S.J. degree must take the Graduate Record Examination prior to admission to the University or soon thereafter.

Requirements. The student will be required to meet the following requirements for the degree:

a. Complete a minimum of 30 semester credit hours, including a thesis with a maximum of 6 hours credit.

b. At least 18 hours of work, including the thesis, must be taken in the School of Journalism.

c. A minor of 9-12 hours credit must be taken outside the School of Journalism.

Examination. On completion of course requirements, the candidate shall be required to pass an oral examination on his thesis and on his competence in his major and minor fields.

COURSES OF INSTRUCTION

The following system of course numbering is employed: Courses 1-99, intended primarily for freshmen and sophomores; courses 100-199, intended primarily for juniors and seniors; 200-299, advanced courses open to juniors, seniors, and graduate students; 300-399, open to graduate students only.

1. Introduction to Mass Communications. I, II, S. 2 hr. Recommended for all University students; required of journalism majors. Role of the mass communicator in developing the political, social, and economic fabrics of a democratic society. Organization and function of newspapers, magazines, broadcast stations, and other principal media of mass communications, including the role of advertising.

2. Lectures in Journalism. II. 1 hr. Open to all University students; required of journalism majors. A series of one-hour weekly addresses by specialists representing the principal mass communications industries and professions.

18. News Writing. I. 3 hr. PR: English 1 and 2, with an average of 2.5 or higher for the two courses, or consent. Open to all University students; required of all journalism majors. Two lec. and a 2-hr. lab.-demonstration period. Fundamentals of news gathering and writing.

19. Copy Editing and Makeup. II. 3 hr. PR: Journ. 18. Required of all journalism majors. Two lec. and a 2-hr. lab.-demonstration period. The editing of news copy, headline writing, and introduction to page makeup.

101. Interpreting Current Events. I, II. 1 hr. PR: Sophomore standing. Open to all University students; required of all journalism majors. A study of national and world news developments, their backgrounds and their meanings. May be repeated for a maximum of four hours credit.

108. The Community Newspaper. I. 2 hr. Open to all University students; required in Advertising-Management curriculum. Fundamental problems and techniques in the operation and management of smaller community newspapers. One lec. and 2 lab. hours.

109. Applied Newspaper Management. II. 2 hr. PR: Journ. 108 or consent. Required in Advertising-Management curriculum. Organization, operation, and management of daily newspapers. One lec. and 2 lab. hours.

110. Typography and Printing Processes. I, II, S. 2 hr. Open to all University students; required in Advertising-Management, Public Relations, and Technical Journalism curricula. Historical development of type, printing processes, and offset presses and Linotype machine. Identification of type and its application to advertising, newspaper, and magazine production.

113. Principles of Advertising. I, II, S. 3 hr. Open to all University students; required in Advertising-Management and Public Relations curricula. Two lec. and a 2-hr. lab. period. Survey of the function of advertising in the American economic system for national and retail advertisers. Study of individual advertising and media, copy and layout problems, appeals, research, production, schedules, federal and state laws affecting advertising, and ethics. Practical laboratory work in writing and layout of advertisements.

114. Newspaper Advertisement Selling. I, II. 2 hr. PR: Journ. 113. Required in Advertising-Management curriculum. One conference and 5 lab. hours arranged. Selling of space, preparation of retail copy, and servicing local newspaper accounts for the *Daily Athenaeum*. Students handle specific assignments, develop new accounts, and apply the mechanics and psychology of space-selling. Enrollment restricted.

115. Advertising Copy and Layout. II. 2 hr. PR: Journ. 113 or Marketing 120. Required in Advertising-Management curriculum. Two lec. and a 2-hr. lab. arranged. Applying tested advertising methods to the preparation of merchandise copy; layout design; production of publication advertising. Emphasis on sales appeals, attention factors, layout planning, illustrations, copy writing, copy testing, and production methods and problems for retail and national advertisers.

116. Radio and Television Advertising. I. 2 hr. Open to all University students; required in Radio-Television curriculum. Historical development of radio and TV as advertising media, including rates, listener surveys, sponsorship problems, and promotion. Writing of radio and television commercials, programs, and preparation of sales and sales promotion plans for stations, national and retail advertisers. Federal regulations affecting broadcast media.

118. Reporting. I, II. 3 hr. PR: A grade of "C" or higher in Journ. 18. Required of majors in all sequences except Advertising-Management. Nine laboratory hours on the *Daily Athenaeum* and one critique hour.

119. Advanced Editing and Makeup. I, II. 3 hr. PR: A grade of "C" or higher in Journ. 19. Required of majors in News-Editorial and Technical Journalism curricula. Nine laboratory hours on the *Daily Athenaeum* and one critique hour.

120. News Photography. I, II. 2 hr. Open to all University students; required in News-Editorial, Public Relations, and Radio-Television curricula. One lec. hour, 1 demonstration hour, and one 2-hr. lab. An introduction to basic photographic principles. Students use several types of cameras, and learn to develop, print and enlarge. No laboratory fee is charged for this course, but each student is required to purchase a photography kit the cost of which will be between $10 and $15. The kit contains all the film and photographic paper he will use during the course; chemicals are provided by the School.

122. Radio and Television Reporting. I. 2 hr. PR: Journ. 18 or consent. Required in Radio-Television curriculum. A lab. course providing training in skills required in the writing and broadcasting of news; practice (including use of tape recorder) in reporting and editing news for programs with various formats. One lec. and 3 lab. hours.

123. Radio and Television Reporting. II. 2 hr. PR: Journ. 122 or comparable experience, and consent. Required in Radio-Television curriculum. A continuation of Journ. 122. Practice in getting, writing, and editing local and regional news for broadcast. One lec. and 3 lab. hours.

124. Television News Photography. I. 2 hr. PR: Journ. 120 or consent. Required in Radio-Television curriculum. Theory and practice in basic motion picture techniques, with emphasis on the special requirements of television news programs. One lec. and 3 lab. hours.

125. Television Film Reporting and Editing. II. 2 hr. PR: Journ. 124. Required in Radio-Television curriculum. Production of film clips for news programs on regional television stations; practice in editing and integration of visual materials for TV newscasts. One lec. and 3 lab. hours.

128. Reporting of Public Affairs. II. 2 hr. PR: Journ. 18 or comparable experience and consent. Required in News-Editorial curriculum. Reporting of routine and extraordinary activities of municipal and county government and of miscellaneous civic areas. Study of trends in local government structure. Visits to courts and public offices. A consideration of media responsibility as interpreters of public affairs.

170. Mechanical Composition. II. 1 hr. Open to all University students. The fundamentals of operation, care and maintenance of the Linotype. The use of

mechanically produced type in newspapers and other publications. Special problems in mechanical composition. One lec. and 1 lab. hour.

201. Interpreting Current Events. S. 1 hr. Open to all University juniors, seniors, and graduates. Journalism majors may substitute for the Journ. 101 requirement. A study of national and world news developments, their backgrounds and their meanings.

212. Public Relations. I, II, S. 3 hr. Open to all University students; required in Public Relations and Technical Journalism curricula. Principles, problems, and practices concerned in the relationships of businesses, industries, and non-profit organizations with their respective publics; practice in the evaluation of existing PR programs and their refinement for further effectiveness.

213. Industrial Journalism. II. 2 hr. Open to all University students; required in Public Relations and Technical Journalism curricula. A study of the relations between industry and its many publics, with emphasis on internal and external company publications as public relations media. Extensive practice in planning and writing materials and in page makeup for industrial publications and trade journals.

215. High School Journalism. II, S. 2 hr. Open to all University students. A survey of scholastic publications problems and techniques; suggested methods of instruction.

220. Newspaper and Magazine Article Writing. II. 2 hr. Open to all University students; required in Technical Journalism curriculum. A seminar-type course devoted to the writing, editing and marketing of features, including reviews and critical articles.

227. History of Journalism. I, S. 3 hr. PR: Hist. 52 and 53. Open to all University students; required in News-Editorial curriculum. A study of the impact of the American press on the nation; the development of today's communications media from the beginnings in 17th Century England and in the American colonies; an examination of the great names in journalism from the standpoint of their contributions to today's journalism; freedom of the press and its current implications.

230. Editorial and Law of the Press. I. 2 hr. Open to all University students; required in News-Editorial and Public Relations curricula. Writing and analyzing editorials and columns; a study of the editorial page and editorial ethics, problems and policies; a study of the vital elements of libel, privacy, contempt, and other phases of law of the press.

235. Editorial and Law of the Press. II. 2 hr. Open to all University students; required in the News-Editorial curriculum. A continuation of Journ. 230.

239. Seminar in Advertising-Management Problems. II. 2 hr. PR: Senior standing and major or minor in advertising. Required in Advertising-Management curriculum. Current trends in advertising, merchandising, and distribution problems. Students develop individual projects in some phase of advertising or management.

241. Journalism Problems. I, II, S. 1-3 hr. For seniors and graduates. An intensive study, independently conducted, of a specialized area or problem in journalism to be approved by the Dean.

242. Advanced Journalism Problems. I, II, S. 1-3 hr. A continuation of Journ. 241.

243. International Communications. I. 3 hr. International wire services. Coverage of world news in newspapers of the United States and foreign countries; and desirability of a free flow of information to and from the United States. United Nations efforts to lower news barriers will be examined.

301. Research Methods and Literature. I, S. 3 hr. A study of methods common to communications research; critical examination of communications literature; independent research project by each student.

302. Seminar in Communications Theory. II, S. 3 hr. Historical development of the mass media; problems of communicating with the various publics; general problems of contemporary mass media.

312. Seminar in Institutional Relations. II. 3 hr. A study of the problems of public relations and public information officers of educational institutions of higher learning and public service organizations; thorough study of the publics which these officers attempt to reach.

315. Seminar in Journalism Education. S. 1-3 hr. Discussion of journalism educational problems. Each student will do an individual research project planned to provide for his professional development as a teacher of journalism. Emphasis on secondary-school problems.

322. Seminar in Radio-Television Problems. S. 3 hr. Investigation and discussion of current problems and practices in the field of broadcast journalism. The student and the instructor will choose a problem, or a phase of a problem, for analysis and research as the course progresses.

339. Seminar in Advanced Advertising-Management Problems. II. 3 hr. Recently developed ideas and techniques in advertising research, and media management.

343. Seminar in the Foreign Press. II. 3 hr. Studies in legal and communications problems of the international flow of news and opinion; international press codes; communications media of major countries.

380. Thesis. I, II, S. 2-6 hr.

The College of Law

The College of Law, established in 1878, is the oldest professional school in the University.

In 1897 the course of study was increased from one year to two years. Since 1912 the degree of Bachelor of Laws has been conferred only upon satisfactory completion of three years of law-school work. From 1913 to 1924 the requirement for admission was one year of college work; from 1924 to 1931 the requirement was two years and from 1931 to 1958 the requirement was three years, and since 1958 the minimum pre-law requirement for admission to the College of Law has been a baccalaureate degree from an institution of approved standing.

In 1914 the College of Law was admitted to membership in the Association of American Law Schools, an organization of leading schools established for the purpose of maintaining high standards in legal education. The College of Law is on the list of schools approved by the American Bar Association.

The Law Building

The College of Law occupies a fireproof building, erected for its use in 1923. The building is three stories high. It contains two classrooms, two seminar rooms, and a practice-court room, as well as private offices for each member of the staff. The library has a reading room accommodating the entire student body. In addition, the building has a locker room and club rooms for the students.

The Law Library

The Law Library contains more than 64,500 volumes. It includes reports of the highest courts of all states, insular possessions, and the District of Columbia, with the exception of a few volumes no longer obtainable, together with published reports of the lower courts of various states; the National Reporter System, and reports of the Federal courts and commissions; selections of annotated cases; the American and the English encyclopedias of law; and the American Digest. It also contains reports of the English courts, as contained in the English Reprint and the Law Reports, as well as the Irish reports, the Scotch reports, and the more important Canadian and Australian reports; the English statutes and the statutes of the various states, as well as Federal statutory material, including more modern codes and compilations; a complete collection of codes and session laws of the Virginias from the time of early settlers; treatises and textbooks, representative fairly of the legal literature dealing with common law and with civil law, including a large amount of old English historical material.

In addition to these, there are legal periodicals and an extensive collection of bar association reports and legal miscellany; briefs and records of cases decided by the Supreme Court of Appeals of West Virginia, now totaling more than 1,200 volumes, together with briefs and records of the more recent cases in the Circuit Court of Appeals of the United States for the Fourth Circuit.

Admission to the Bar

Under the provision of the West Virginia Code those who receive the degree of Bachelor of Laws from West Virginia University may be admitted to the bar without further examination.

All persons seeking admission to the West Virginia bar, except those who hold the degree of Bachelor of Laws from West Virginia University, are required to pass the state bar examination.

Information as to the bar examinations and as to other matters relating to admission to the bar may be obtained upon inquiry directed to the Secretary, State Board of Law Examiners, Charleston, West Virginia.

The West Virginia Law Review

The *West Virginia Law Review* is published by the College of Law. Student contributions comprise about one-half the material published in the *Law Review*. Members of the second- and third-year classes with high scholastic standing are eligible for membership on the Board of Editors. Participation on the *Law Review* affords an opportunity for advanced, independent research.

ADMISSION REQUIREMENTS

Application forms may be obtained from the Registrar of the University. Every applicant for admission must request the registrar of each college or university he has attended to send directly to the Registrar of the University at least one month prior to registration a complete transcript of his record. Evaluation of credentials is made by the Registrar of the University. First-year students are admitted to the College of Law only at the beginning of the first semester.

No applicant will be admitted who previously shall have attended another law school and who shall be ineligible to return to that school in good standing. No applicant will be admitted who has been convicted of a crime which is ground for the annulment or suspension of a license to practice law in West Virginia.

All candidates for the degree of Bachelor of Laws must present a baccalaureate degree from an institution of approved standing. Any degree from such an institution will be regarded as satisfying the requirements for admission provided that, in the opinion of the Scholarship Committee of the College of Law, the degree satisfies the entrance requirement of the Association of American Law Schools.

The College of Law does not prescribe the courses which must be presented for admission. It is essential, however, that a student, before entering upon the study of law, should have a thorough grounding in English, particularly English composition. A student will not be graduated with the degree of Bachelor of Laws if he is markedly deficient in the use of English; and if it appears upon his written examinations that he is seriously handicapped in this regard, he will be required to correct the deficiency before he is permitted to continue in the College of Law. A student should also have a comprehensive grounding in history, particularly American and constitutional history, and in general in enough of the social sciences and humanities to give him a broad informational and cultural background and to develop in him a disciplined reasoning faculty. It is desirable to include some courses in mathematics, accounting, economics, and Latin. The individual needs of the student, however, may well be considered and it is therefore inadvisable to lay down fixed rules.

All candidates for admission to the College of Law are required to take the Law School Admission Test (LSAT), administered by the Educational Testing Service, Princeton, New Jersey. Students entering in September, 1963, will be permitted to take this test after their enrollment but prior to final examinations for the first semester.

Irregular Students

A limited number of students with less than the academic credit required of candidates for the degree of Bachelor of Laws will be admitted under the following conditions:

(1) If they have credit for no less than two years of work of collegiate grade in an institution of approved standing, or if they present a statement from the West Virginia State Board of Law Examiners certifying that they have satisfied the prelegal educational requirements of the Board;

(2) If they are at least 23 years of age;

(3) If they present some good reason, acceptable to the Scholarship Committee, indicating that their experience and training have especially equipped them to engage successfully in the study of law, despite lack of the required college credits.

An applicant who has been admitted as an irregular student and who, since his admission, has completed all the requirements for admission as a regular student

may, upon the satisfactory completion of one full year of work in the College of Law, apply to the Scholarship Committee for permission to be granted the status of a regular student and to be given credit for law school work of a "C" grade or better taken while he was an irregular student.

Admission to Advanced Standing

Applicants for admission to advanced standing must satisfy the ordinary requirements for admission to the first-year class, must have successfully pursued the study of law in a school which if in the United States is a member of the Association of American Law Schools, and must have received credit for courses equivalent to those required of students in the College of Law. Such applicants must have received an average grade of "C" or its equivalent on all work taken at such other law school or law schools. The extent of credit allowed for work done elsewhere is determined by the Scholarship Committee. A student will not be allowed credit, however, for work carried in another law school unless the student receives thereon a grade of "C" or its equivalent.

Students in Other Colleges

Students of at least senior standing in other colleges or schools of the University may be permitted to take work in the College of Law subject to the regulations of the units where they are registered and of the College of Law, but conditioned in each case upon the consent of the instructor giving the course which such students desire to take.

EXAMINATIONS

Written examinations are held at the end of each semester. Reports of students' grades are made at the end of each semester.

All courses extend either through the entire academic year or through one semester. No credit will be given for less than an entire course except by special order of the Committee on Scholarship.

Final grades are based primarily on written examinations, but in determining a grade, the instructor may give such weight as he deems best to daily recitations or other classroom assignments. He may refuse examination to any student because of poor attendance. A student who is absent from as many as 25 per cent of the scheduled class hours for any given course shall not be permitted to take an examination in the course except by special permission of the faculty.

No student who is absent from any regular examination without being excused therefrom by the faculty of the College of Law will receive credit unless he successfully repeats the course. If absence from a final examination is permitted by the faculty, the student's grade in that course will be withheld until he has passed the next regular examination in the course. Application for leave to be absent from a regular examination must be made before the time at which such examination closes.

To be graduated, a student must obtain an average grade of "C," computed on the basis of all work taken during the first three years or on the basis of the first 81 hours, if the student has not taken the required 81 hours during the first three years.

A student who at the end of the third or any subsequent semester has a grade of "D" or less in more than half his work, computed on the basis of the total number of hours which he has taken, shall be excluded permanently from the College of Law, unless on such work he has obtained an over-all average of "C."

A student who fails to pass half his work, computed on the basis of hours carried during any semester, shall be suspended. Upon application to the Committee on Scholarship, a student so suspended, unless excluded under the preceding rule, may be readmitted, but with the understanding that if he again fails to pass half his work he shall be excluded permanently from the College of Law.

In view of public and professional responsibilities the College of Law reserves the right to drop any student from the rolls whenever, by formal decision reduced to writing, the faculty finds that the student is unfitted to meet the qualifications and responsibilities of the legal profession.

REQUIREMENTS FOR DEGREES

BACHELOR OF LAWS

The degree of Bachelor of Laws is conferred upon those who have met the requirements for entrance to the College of Law as candidates for this degree and who have satisfactorily passed examinations in courses aggregating eighty-one credit hours, distributed over three years' residence. They must also have obtained an average grade of "C" as hereinafter provided. Except with the permission of the Scholarship Committee, these eighty-one hours must be taken in no more than seven semesters or the equivalent thereof in summer school and the last twenty-seven hours of work must be taken in the College of Law of West Virginia University. When a student, because of admission with advanced standing from another law school, needs less than eighty-one hours in order to satisfy the requirements for this degree, the "C" average required for graduation is computed on the basis of work taken in the College of Law. No student may receive the degree of Bachelor of Laws without at least three semesters in residence at the College of Law and the successful completion of courses aggregating at least one-half of the total number of hours required for graduation.

PROGRAM OF INSTRUCTION

It is the primary aim of the College of Law to give the student an adequate preparation for the practice of law. This involves not merely imparting a knowledge of the legal rules and other materials which courts and administrative tribunals employ, but also, what is equally important, a training in the techniques of legal thinking and, so far as it is feasible to do so, in the practical skills of the profession. Some courses are especially designed to acquaint the student with the realities of practice, including the drafting of legal instruments and personal participation in the trial of cases in Practice Court. To the extent that it is practicable to do so, cases are tried in Practice Court exactly as they would be tried in an ordinary court. General information as to the nature of the training to be acquired in Practice Court and in the prerequisite course on Practice and Procedure is set forth *infra* under *Description of Courses.*

In most courses the work of the student is based chiefly upon the study and discussion of decided cases and statutes, with collateral reading of textbooks and periodicals, elucidated by free discussion in class. In all courses special emphasis is given to those West Virginia cases, statutes and procedures that differ from the general law. Thus, although it is an aim of this College to give to West Virginia students a training which is not available at any other law school, it is at the same time a fundamental objective of this College to give every student such a general and practical legal training that he will be adequately qualified to practice law in any other state.

The over-all objective of the College of Law connotes, among other things, an attempt to train the student to discover and solve the ever-varying problems which constantly confront lawyers, courts and administrative tribunals; and this, in essence, envisions cultivating in the students a capacity to think intensely and inquiringly, an ability to make searching analyses of complex fact situations which will disclose the legal questions involved therein, an imaginative resourcefulness in ascertaining possible solutions, a will and patience to investigate their validity and practicability, and a determination not only to take nothing for granted but to act conscientiously and courageously on his own considered judgment. This also involves an effort to inculcate in the student an appreciation of the lawyer's responsibility to his client and to society, and an understanding of the grave dangers inherent in any infringement of the ethical standards of the profession.

The following program of instruction is designed with these ends in view. The following courses are required: All first-year courses, Pleading and Joinder, Equity, Evidence, Federal Income Taxation, Legal Ethics, Research Seminar, Practice and Procedure, and Practice Court. All other courses are elective. Under very exceptional circumstances, the Scholarship Committee may exempt a student from taking

a required course, or may permit a student to take a first-, second-, or third-year course in some other year. Neither fewer than 13 nor more than 16 hours may be carried without the consent of the Scholarship Committee.

DESCRIPTION OF COURSES

The following abbreviations are used in the description and schedule of courses:

A—an alternate course—not given every year.
I—a course given in the first semester.
II—a course given in the second semester.
I and II—a course given throughout the year.
PR—prerequisite.
R—required.

FIRST YEAR

100. Accounting for Lawyers. II. 2 hr. R. This course is designed for students with no previous training in accounting. It has as its objective the preparation of a young lawyer for collaboration with accountants on problems that require the work of both professions for a solution. The principles of elementary bookkeeping are considered only insofar as it is necessary to enable the student to grasp the more fundamental questions of accounting policy. The major portion of the course concerns the application of sound accounting principles to the problems of periodic determination of revenue, matching costs and revenues, inventory methods, valuation of tangible and intangible assets, depreciation and amortization, surplus and reserves, analysis of financial statements, and consolidated financial statements. Practical problems are regularly assigned for outside work. Amory and Hardy, *Materials on Accounting*, 3rd. ed. by Herwitz & Trautman.

102. Judicial Remedies. I. 2 hr. R. Introduction to civil procedure; common-law forms of action; extraordinary legal remedies; statutory remedies; abolition of the forms of action; fusion of law and equity. Casebook to be announced.

104. Contracts. I. 6 hr. R. The general principles of substantive law relating to contracts, formal and informal. The creation of simple contracts by offer and acceptance, consideration, Statute of Frauds, joint obligations, third-party beneficiary contracts, assignment of contractual rights and delegation of duties; conditions, performance and breach, excuses for nonperformance, impossibility of performance, discharge of contractual duties, and illegal contracts. Williston, *Cases on Contracts*, 6th ed., A.L.I. Restatement of Contracts.

106. Criminal Law and Procedure. I. 4 hr. R. A systematic survey of the penal law, the principles and maxims of the general part, the rules of the special part, with the elements of specific crimes against person and property. Criminal law enforcement and criminal procedure at common law, with emphasis on West Virginia practice, including pleading in criminal cases. Perkins, *Cases on Criminal Law and Procedure*, 2d ed.

110. Legal Research and Writing. II. 2 hr. R. The nature and use of law books, with training and practice in research and composition. Lecture, audio-visual instruction, and work assignments, leading students through the various steps in researching, analyzing and explaining legal problems and propositions. Preparation of office memoranda, opinion letters, and briefs. Pollack, *Fundamentals of Legal Research* (2d ed.); Weihofen, Legal Writing Style (1961).

112-113. Property I. I and II. 6 hr. R. (a) The law of personal property to the extent that it is not covered in other courses. (b) The historical background of real property. Obtaining title to land through adverse possession. The modern land transaction which includes the statute of frauds, contract for

the sale of land, marketable title, status of vendor and vendee and problems in equitable conversion, the mortgage and trust deed, the deed, delivery in escrow, description of land, covenants for title, recording acts, bona fide purchases for value, and examination of title. Controlling the use of land through legislation and restrictive covenants. (c) The law of landlord and tenant which includes the creation of the landlord and tenant relations, creation and effect of express and implied covenants in leases, transfers of leasehold and revisionary estates, breach of covenants and conditions, and termination of the landlord and tenant relation. Casner and Leach, *Cases and Text on Property.*

114. Torts. II. 5 hr. R. Liability for intentional and unintentional acts. Includes assault and battery; false imprisonment; privileged acts; negligence; causation; strict liability; deceit; defamation, and invasion of rights of privacy. Seavey, Keeton and Keeton, *Law of Torts.* 1957 ed.

SECOND YEAR

200. Pleading and Joinder. II. 4 hr. R. Statement of claims; answers; replies; joinder of claims; joinder of parties; pre-trial objections to pleadings and to joinder of claims and parties. Blume and Reed, *Pleading and Joinder;* Cases and Statutes; West Virginia Rules of Civil Procedure.

202. Constitutional Law. I. 3 hr. The course aims to impart an understanding of the role of the Federal Constitution in relation to individual liberties and to the federal system and of the judicial process in operation as exemplified in constitutional decisions. The focus is on the commerce and the due process clauses almost exclusively. The materials assigned for study consist of the full text of the original reports of selected cases. Dowling, *Cases on Constitutional Law,* 6th ed., and current supplement.

204. Equity. I. 4 hr. R. This course deals with equity jurisdiction; operation and enforcement of decrees for equitable relief; specific relief against torts; specific performance of contracts, including consideration of the types of contract as to which courts will grant such relief, the extent to which the court will grant relief together with the various "equitable" defenses, such as fraud, inadequacy of consideration, laches, hardship, and lack of mutuality. Chafee and Re, *Cases on Equity,* 4th ed.

206. Federal Courts. II. 3 hr. Jurisdiction and procedure in federal courts. Federal question and diversity jurisdiction; removal jurisdiction and procedure; the law applied in federal courts; venue, process, joinder of parties and actions, and trial of actions in federal courts. McCormick and Chadbourn, *Cases on Federal Courts,* 3rd ed.

208. Income Taxation. I. 4 hr. R. The course is designed to give the student a thorough understanding of the basic application of the federal income tax system and of the administrative and judicial procedures available for the resolution of tax controversies. Gross income items; deductions; tax accounting; gains and losses from the disposition of property; taxation of the family, including trusts and marital arrangements; partnerships; corporations and security holders; corporate reorganizations and readjustments. Familiarization with the tax forms is provided by practical problems regularly assigned. *Federal Taxation—Current Law and Practice* (Surrey and Warren: Commerce Clearing House, 1962 ed.)

210. Moot Court. I. 2 hr. Study and training in appellate practice. Individual research and group discussion on problems in presentation of cases before appellate courts. Preparation of appellate briefs based on the records of actual cases and presentation of oral arguments before judges selected from the West Virginia Bar.

212. Property II. I and II. 5 hr. (a) The types and problems of future interests which arise in the construction of deeds and wills with particular emphasis on problems of construction, powers of appointments, class gifts and the rule against perpetuities. (b) The descent and distribution of property under intestacy laws, the law of advancements, and laws protecting children and surviving spouses from disinheritance. (c) The law of wills, including the incorporation of nontestamentary acts and documents into wills. (d) The administration of decedents' estates. Simes, *Cases on Future Interests,* 2d ed.; Leach, *Cases and Text on the Law of Wills,* 2d ed. (1960 revision).

214. Trusts. II. 4 hr. The nature of a trust, its creation and elements; the transfer of a beneficiary's interest; the administration of trusts; the termination and modification of the trust; charitable trusts; liabilities to and liabilities of third persons; resulting and constructive trusts. Scott. *Cases on Trusts.* 4th ed.

THIRD YEAR

300. Conflict of Laws. II. 4 hr. The legal problems arising when an occurrence cuts across state or national boundaries, emphasizing questions of characterization, jurisdiction, foreign judgments, recognition and application of foreign law, in selected fields of law, including contracts, torts, property, domestic relations, administration of estates and corporations. Cheatham, Goodrich, Griswold, and Reese, *Cases and Materials on Conflict of Laws.*

302. Corporations. I. 4 hr. The law of business corporations including formation of such corporations; corporate powers and their distribution between shareholders, directors, officers and agents, and the manner of exercising such powers; creation and maintenance of corporate capital; the issuance and marketing of securities, and the rights of shareholders with respect to dividends. Baker and Cary, *Cases and Materials on Corporations,* 3rd ed. Abridged.

306. Estates and Gift Taxation. I. 2 hr. The course concerns the application of the federal transfer taxes (the gift tax and the estate tax) and the West Virginia inheritance tax. Basic application; inter vivos transfers subject to both transfer taxes; joint interests; life insurance; valuation; exemptions, exclusions and deductions, marital deductions and split gifts. Statutory materials on the West Virginia inheritance tax are explained. Casebook to be announced. *Federal Taxation—Current Law and Practice* (Surrey and Warren: Commerce Clearing House.)

308. Evidence. I. 4 hr. R. This course deals with the law of evidence in trials at common law and in equity, with collateral reference to proceedings before commissions. The principal topics covered are judicial notice; burden of proof and presumptions; problems of relevancy, remoteness, undue prejudice, and the like, leading rules and principles of exclusion and selection; functions of judge and jury; a study of the materials and procedures dealing with form of testimony; perception and memory in connection with presentation of testimonial evidence; direct examination and matters incident thereto; cross-examination and matters incident thereto; redirect examination; discretion of the trial judge; competency and privilege. A considerable part of the classroom work deals with the handling of problems after the manner in which the problems would be handled in a trial court. Where the local law differs from the commonly accepted view, special attention is given to the West Virginia law. Morgan, Maguire, and Weinstein, *Cases and Materials on Evidence,* 4th ed. (1957), supplemented by required readings.

310. Lawyers' Professional Responsibility. I. 1 hr. R. This course deals with the lawyer's professional responsibility in the administration of justice and in society generally. The Canons of Professional Ethics and the Canons of Judicial Ethics are required reading. Lectures, case analyses and class dis-

cussions deal with the supervision and discipline of lawyers, unauthorized practice of law, advertising by lawyers, fees and charges, confidential communications, conflicting interests, relation of lawyers to the courts, juries, clients and witnesses as well as other lawyers, and other problems in the area of professional ethics. Trumbull, *Materials on the Lawyer's Professional Responsibility* (1957) and collateral materials.

311. Office Practice. II. 1 hr. Practical problems in law office practice as distinguished from trial practice; but including law office phases of trial practice. Lectures by visiting attorneys in particular areas of practice. *Text materials selected.*

312. Practice and Procedure. I. 4 hr. R. PR: Pleading and Joinder. This course deals primarily with the fundamental procedural phases of a civil action; issuing, requisites and service of process; appearances; default procedure; continuances; the right to a jury trial and the processes by which a jury is selected; trial by the court without a jury; pre-trial conferences; right to open and close; objections; order of proof; dismissals; summary judgments; motions for directed verdicts or for judgments; instructions to juries; arguments of counsel; deliberations of the jury; verdicts, new trials; relief from judgments or orders; appellate procedure. Attention also is given to attachment, garnishment and suggestion. Special attention is given to the procedure applying to preliminary injunctions. Joiner, *Trials and Appeals;* Cases, Text, Statutes, Rules and Forms; West Virginia Rules of Civil Procedure.

314. Practice Court. II. 2 hr. R. PR: Pleading and Joinder; Practice and Procedure. Students view motion pictures or are given statements of facts which provide information similar to that furnished by clients and witnesses to counsel. Having interviewed these students, counsel for plaintiffs are expected to select proper remedies and counsel for defendants are expected to interpose appropriate defenses. The court is called The University Court and performs the functions of a circuit court of the state. For purposes of venue, it may function as The University Court of any county in the state. Cases are litigated, from the filing of the complaint and the issuance of process to final judgment or decree, as in actual practice. The presiding judges are judges of the various circuit courts and of the Supreme Court of Appeals of the state. Members of the class impersonate litigants and witnesses and serve as officers of the court.

316. Research Seminar. II. 2 hr. R. Each third-year student is required to take at least one of the seminars offered each year. Enrollment will be limited so as to provide approximately the same number of students in each seminar. In so far as possible, however, assignment to the seminars will be in accordance with the preferences indicated by the students. The following seminars are offered: Estate Planning, Evidence, Land Transactions, and Procedure.

SECOND OR THIRD YEAR

250. Administrative Law. II. 3 hr. A comprehensive outline of agency procedures rather than intensive study of any particular agency. Attention is directed primarily, though not exclusively, to federal agencies. The administrative process itself, including the operation of the Administrative Procedure Act, receives primary emphasis in an effort to qualify students for effective client representation in dealing with the agencies. Judicial and other outside controls of agency action are studied and the extent to which constitutional limitations apply is touched on. Davis, *Administrative Law Cases* (1959).

252. Business Associations. I. 3 hr. A. This course covers the various types of business associations other than corporations. Conduct of business by agents, including the employment relation and workmen's compensation, is considered in some detail. Also considered are joint ventures, partnerships, unincorporated associations, joint stock associations, and business trusts, Steffen, *Cases on Agency.*

254. Coal, Oil and Gas. II. 3 hr. A. Nature of ownership of these subsurface minerals; methods of transferring the ownership thereof; exploitation by means of leases; protection from damage against wrongful taking thereof; partition among co-owners; analysis of leasehold estates, the habendum clause, the drilling clause, leasee's duty of development, assignment of leases and transfers of the reversion; rents and royalties; tort liabilities in connection with operation; coal mining rights and privileges. Summers, *Cases on Oil and Gas.*

256. Creditor's Rights. I. 3 hr. A. Procedures for enforcing the rights of creditors. Individual procedures (execution, garnishment, suggestion and creditors' bills); fraud on creditors; collective procedures (general assignments, creditors' agreements, and bankruptcy). Hanna and MacLachlan, *Cases on Creditors' Rights,* 5th ed., also Hanna and MacLachan, *Bankruptcy Manual,* 5th ed.

258. Damages. I. 2 hr. The course deals with the rules and principles of law applicable to the determination of the sum of money to be awarded to the plaintiff in a legal action brought to recover for the loss suffered by him as a result of some violation of his legal rights caused by the defendant. One-third of the course is allotted to the study of the rules and standards applicable generally, such as determination of value, requirement of certainty, recovery of interest and expenses of litigation, the doctrine of avoidable consequences, and credit for benefit accompanying injury. The next one-third deals with damages in tort actions and considers exemplary damages, injuries to the person, defamation and business disparagement, deceit, and injuries to the interests of owners of personal property and to the interests of landowners. The final one-third is devoted to a study of the rules and measures of damages for breach of contract. McCormick and Fritz, *Cases and Materials on Damages,* 2d. ed.

260. Domestic Relations. II. 2 hr. The law in its relation to creation, stability and breakdown of domestic relations, including engagement, marriage, annulment, separation, divorce, alimony and support, custody, legitimacy and adoption. Compton, *Cases on Domestic Relations.*

262. Insurance. II. 2 hr. A. This course concentrates on the special problems and documents which revolve about the insurance contract in the fields of marine, life, fire, accident, disability and liability insurance. Among these problems are definition of the risk, definition of the persons insured, defenses, measurement of losses, extent of underwriter's liability, subrogation, contribution between underwriters, and determination of insurance rates. Vance's *Cases on Insurance,* 4th ed. by Fegan (1952).

264. Labor Law. II. 3 hr. A. Common law doctrines affecting the union movement are briefly surveyed, but the principal aim of the course is the National Labor Relations Act, its amendments and the policies promulgated under it by the National Labor Relations Board. Casebook to be announced.

266. Legislation. I. 2 hr. A. A survey of the legislative process; relation of the legislative to the judicial and executive branches; legislation and common law rules; legislative procedure; elements of statutory interpretation; fact and policy determination of the legislative process; legislative drafting. Casebook to be announced.

268. Local Government Law. I. 2 hr. A. Nature and function of local government, counties, cities, towns and villages, as well as permanent and *ad hoc* agencies and districts. Creation, annexation, dissolution, rights and duties (zoning, appropriation of funds and contracts), powers and liabilities (contract and tort), personnel, municipal finance (debt limitation and special assessment). Casebook to be announced.

270. Negotiable Instruments. I. 3 hr. The law dealing with bills, notes, and checks is examined in conjunction with that concerning the relationship of

banks with depositors and with other banks. The course aims to explain how our commercial credit arrangements operate and how claims based on such arrangements are created and protected. Aigler, *Bills and Notes*, 2d. ed.

272. Sales. II. 3 hr. A. The course concentrates on the sale of goods and the financing arrangements connected with such sales. Heavy emphasis is placed on modern statutory rules affecting such transactions. Honnold, *Law of Sales and Sales Financing*, 2d ed. (1962).

274. Suretyship. II. 2 hr. A. This course is devoted to the discussion of the general principles of surety and guaranty. Special attention is given to the applicable section of the Statute of Frauds; the surety's rights before and after payment; the surety's defenses including the use of set-off and counterclaim, alteration and discharge. Simpson, *Cases on Suretyship*.

280. Legal Research. 1 or 2 hr. as needed

SCHEDULE OF COURSES 1963-64*

Casebooks and other materials to be used in the courses are indicated under *Description of Courses*.

FIRST YEAR

100. Accounting for Lawyers. II. 2 hr. R.	Mr. Collins
102. Judicial Remedies. I. 2 hr. R.	Mr. Lugar
104. Contracts. I. 6 hr. R.	Mr. Donley
106. Criminal Law and Procedure. I. 4 hr. R.	Mr. Lorensen
110. Legal Research and Writing. II. 2 hr. R.	Mr. Dadisman
112-113. Property I. I and II. 6 hr. R.	Mr. Brown
114. Torts. II. 5 hr. R.	Mr. Morris

SECOND YEAR

200. Pleading and Joinder. II. 4 hr. R.	Mr. Lugar
202. Constitutional Law. I. 3 hr.	Mr. Dadisman
204. Equity. I. 4 hr. R.	Mr. Morris
206. Federal Courts. II. 3 hr.	Mr. Lorensen
208. Income Taxation. I. 4 hr. R.	Mr. Collins
210. Moot Court. I. 2 hr.	Mr. Lugar
212. Property II. I and II. 5 hr.	Mr. Brown
214. Trusts. II. 4 hr.	Mr. Colson

THIRD YEAR

300. Conflict of Laws. II. 4 hr.	Mr. Collins
302. Corporations. I. 4 hr.	Mr. Colson
306. Estate and Gift Taxation. I. 2 hr.	Mr. Collins

*The schedule of courses as given here is subject to change.

308. Evidence. I. 4 hr. R. Mr. Dadisman

310. Legal Ethics. I. 1 hr. R. Mr. Dadisman

311. Office Practice. II. 1 hr. Mr. Dadisman

312. Practice and Procedure. I. 4 hr. R. Mr. Lugar

314. Practice Court. II. 2 hr. R. Mr. Lugar

316. Research Seminar. II. 2 hr. R.

Estate Planning	Mr. Collins
Evidence	Mr. Dadisman
Land Transactions	Mr. Brown
Procedure	Mr. Lugar

SECOND OR THIRD YEAR

250. Administrative Law. II. 3 hr. Mr. Dadisman

256. Creditor's Rights. I. 3 hr. A. Mr. Brown

258. Damages. I. 2 hr. Mr. Collins

260. Domestic Relations. II. 2 hr. Mr. Morris

262. Insurance. II. 2 hr. A. Mr. Morris

264. Labor Law. II. 3 hr. A. Mr. Lorensen

266. Legislation. I. 2 hr. A. Mr. Lorensen

270. Negotiable Instruments. I. 3 hr. Mr. Morris

West Virginia University Medical Center

HISTORICAL STATEMENT

The West Virginia University Medical Center has been conceived, planned, and built for the primary purpose of providing the best possible facilities for the education of students in dentistry, medicine, nursing, pharmacy, and related health fields.

The Basic Sciences Building was first opened for instructional purposes in September, 1957.

The School of Dentistry was established by an act of the West Virginia Legislature on March 9, 1951. The first appointment made was that of a consultant to the technical staff for the planning of the Medical Center. On May 1, 1953, the consultant was appointed Dean of the School of Dentistry. The first class of dental students began its studies in September, 1957, and was graduated on June 5, 1961. The twenty-three members of that class were the recipients of the first dental degrees ever awarded in the State. At the present time, more than one hundred students are enrolled in the full four-year accredited dental program. In September, 1961, the first students were enrolled in the school's degree program in dental hygiene.

The School of Medicine, which had been offering a two-year program since 1912, moved from the Main Campus to the Medical Center in 1957. In September, 1960, the two-year program was changed to a four-year program. This coincided with the opening of the new 522-bed University Hospital. In June, 1962, the first M.D. degrees were awarded to fifteen students. Sixty students are now admitted each year to the first-year class.

The School of Medicine for the school year 1945-46 announced and put into operation a curriculum in Medical Technology leading to a degree of Bachelor of Science in Medical Technology. The first graduates were awarded a combined degree by the College of Arts and Sciences and the School of Medicine in June, 1947. In July, 1961 a Division of Medical Technology was established in the School of Medicine. At the present time twenty-five students are enrolled in the program.

The School of Nursing registered its first class of twenty-eight students in the fall of 1960. The nursing program is a four-year degree program and admits approximately sixty qualified students each year.

Pharmacy was first offered at the University as a department in the School of Medicine, beginning in 1914. The Department of Pharmacy was changed to the College of Pharmacy in 1936. The name was changed from College of Pharmacy to School of Pharmacy in 1958 when the program was moved from the Main Campus to the Medical Center. In September, 1960, the School changed from a four-year to a five-year program including two years of Pre-Pharmacy.

EDUCATIONAL FACILITIES

LIBRARY

The Medical Center Library serves the students, faculty, and staff of the four schools and the University Hospital. In addition, its services are available to the health professions throughout the state, and to the general public when needed.

The Library is located on the second floor of the west wing of the Basic Sciences Building and contains 28,000 square feet of space. It is designed to seat 300 people and to hold up to 140,000 volumes in its six stack levels.

There are approximately 59,000 bound volumes now on the shelves. Currently received are more than 1,000 domestic and foreign periodicals titles.

The Medical Center Library and the University Library maintain an active inter-library loan service. Material not owned by either library may be borrowed through loans from libraries in other cities.

The Library is open except on holidays from 8:00 A.M. to 10:00 P.M., Monday through Friday; from 9:00 A.M. to 1:00 P.M. on Saturdays; and from 1:00 P.M. to 5:00 P.M. on Sundays. During the Summer Session the weekday hours are from 8:00 A.M. to 5:00 P.M. Changes in scheduled hours are posted in advance.

CLASSROOMS AND LABORATORIES

All activities within the Medical Center are directly or indirectly related to the teaching program. Each School and Department has planned and provided adequate teaching space. Laboratories are designed so that all necessary laboratory equipment can be brought to the student. Experiments and teaching procedures can be conducted efficiently.

DENTAL CLINICS

Clinical training and experience constitute a major part of the curriculum for junior and senior dental students. The facilities provided for undergraduate dental students, graduate dental students, and the dental hygiene students include one hundred fifty work stations and all the necessary related laboratories. Patients are accepted for treatment if their dental problems are of teaching value and if a student is available for assignment. The student assigned to each case must work under the close supervision of a faculty member. The clinic program not only provides practical experience for the student but also renders a much-needed service to several hundred patients annually.

UNIVERSITY HOSPITAL AND OUT-PATIENT CLINICS

The West Virginia University Hospital and its out-patient clinics opened in the summer of 1960 as integral units of the Medical Center. The Hospital will accommodate 522 patients and the clinics will provide for up to 500 out-patient visits per day.

All recognized medical specialist services are provided through the staff of the respective clinical departments of the School of Medicine. Facilities and staff are available for clinical laboratory service, diagnostic and therapeutic X-ray services, and such special examinations as electrocardiography, cardiac catheterization, and electro-encephalography. Emergency facilities are available at all times.

The Hospital and clinics constitute the main teaching laboratory for clinical students in medicine and nursing, and function also in the education and training of interns, resident physicians, and post-graduate practitioners of the various healing arts.

ADMISSION REGULATIONS

West Virginia University does not limit its applicants to residents of the State; however, priority will be given to West Virginia residents who meet specified requirements. Preference will be given to those applicants who have the higher scholastic records; who make the better scores on the admissions tests; who present official recommendations on forms supplied by the Assistant Registrar, Medical Center; and who in all other respects, give promise of doing satisfactory work as students and as professional persons.

Careful consideration is given to those personal qualifications which have a bearing upon fitness of the applicant for the study and practice of the profession of his choice.

HOW TO APPLY

Applicants for admission to any of the schools at the Medical Center should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

Application Fee

A $10 application fee is required and must accompany the application of all but Dental Hygiene students.

Re-Application

Any applicant who is refused admission, or who fails to enroll after acceptance, must re-apply in the regular manner if he wishes consideration for a subsequent year.

ADVANCE DEPOSIT FEE

Each applicant, except those applying to the School of Pharmacy and the Division of Dental Hygiene, is required to deposit $50 before his name is entered upon the official list of those accepted for admission to any of the programs at the Medical Center. Applicants applying to the School of Pharmacy and the Division of Dental Hygiene deposit $25 if they accept an offer of admission. If the applicant enrolls in the program of his choice, this sum is applied to the tuition of the first semester. If an application for admission to the School of Medicine is withdrawn after the candidate has been offered a place and has made a deposit, such deposit may be refunded at any time prior to January 15 of the year in which enrollment is anticipated. No deposit will be refunded after this date. If an applicant fails to enter any other program at the Medical Center, this deposit fee is forfeited by the applicant.

IMMUNIZATIONS

It is required that during the first semester of the first year all students must complete certain prescribed immunization and diagnostic procedures.

Suspensions

In view of public and professional responsibilities the faculty of each of the professional schools of West Virginia University shall have the authority to drop any student from its rolls whenever, by formal decision reduced to writing, the faculty finds that the student is unfit to meet the qualifications and responsibilities of the profession.

The Basic Sciences

The Departments of Biochemistry, Gross and Neurological Anatomy, Microbiology, Microanatomy and Organology, Pathology, Pharmacology, and Physiology are grouped together because they offer courses, both required and elective, to students in each of the various Schools.

Several of these Departments also have Masters and Ph.D. degree programs. Students interested in working for such an advanced degree or taking graduate courses should contact the Chairman of the Department and consult the Graduate School *Announcements* for further details.

Graduate students must obtain permission from the instructor before enrolling in Medical Center courses.

COURSES OF INSTRUCTION

GROSS AND NEUROLOGICAL ANATOMY

Professor Johnson; Associate Professor Hewes; Assistant Professor Goodge; Clinical Assistant Professors Shaffer and Smith.

101. Principles of Human Anatomy. I. 3-4 hr. PR: Consent. Lectures and demonstrations on the anatomy of the human body, with particular attention to morphological concepts. Designed for students in the paramedical sciences.

201. Gross Anatomy. (For Medical Students, First Year). I and II. 6 hr. per semester, total of 12 hr. PR: Gen. Zool. and consent. A detailed study of the human body with a complete dissection.

203. Neuroanatomy. (For Medical Students, First Year). II. 5 hr. PR: Consent. A gross and microscopic study of the central nervous system.

206. Gross Anatomy. (For Dental Students). I and II. 4 hr. per sem., total of 8 hr. PR: Gen. Zool. and consent. A study of the human body including dissection.

208. Neuroanatomy. (For Dental Students). II. 2 hr. PR: Consent. A gross and microscopic study of the central nervous system.

301. Advanced Gross Anatomy. I, II, S. 2-6 hr. per sem. with a total of 36 hr. available. PR: Anat. 201 and consent. A morphological and functional analysis of a selected region. With dissection.

302. Advanced Developmental Anatomy. I, II, S. 2-6 hr. per sem. with a total of 18 hr. available. PR: Anat. 201 and consent. Detailed developmental anatomy of the fetal period and childhood. With dissections and analysis of variations and malformations.

303. Seminar. I, II, S. 1-6 hr. PR: Consent. Selected areas of study including historical aspects.

304. Applied Anatomy. I, II. 2-6 hr. per sem. with a total of 36 hr. available. PR: Anat. 201 and consent. A regional study primarily intended for physicians and surgeons.

350. Research in Gross and Neurological Anatomy. I, II, S. 1-6 hr. PR: Anat. 201, 203 and consent.

MICROANATOMY AND ORGANOLOGY

Professor Williams; Associate Professors Higginbotham and Reyer.

109. Oral Histology. (For students of Dental Hygiene). II. 2 hr. A study of histological structure of the teeth and tissues of the oral cavity and the morphological development of these structures.

205. Microanatomy and Organology. (For Medical Students, First Year). I. 6 hr. PR: Gen. Zool. or equiv. Structure, function and embryology of tissues and organs.

209. Microanatomy and Organology. (For Dental Students). I. 6 hr. PR: Gen. Zool. Structure, function and embryology of tissues and organs with emphasis on teeth and supporting structures.

305. Experimental Embryology. II. 3 hr. PR: Embryology, Microanat. 205 or 209 and consent. An analysis of development, differentiation and regeneration.

351. Advanced Microanatomy and Organology. I, II, S. 2 hr. PR: Microanat. 205 or 209. Required of all graduate students in this department.

352. Research in Microanatomy and Organology. I, II, S. 2-12 hr. PR: Microanat. 351 and consent.

353. Special Problems in Microanatomy. II. 2-4 hr. PR: Microanat. 205 or 209 and consent. For students other than candidates for a graduate degree in Microanatomy.

BIOCHEMISTRY

Professor Krause; Associate Professors Lotspeich, Shelton, Burke and Canady; Assistant Professors Gangloff and Connelly.

139. General Biochemistry. (For students in Home Economics, Medical Technology, and Pharmacy). I. 4-5 hr. PR: Inorganic and Organic Chem. Quantitative analysis desirable. Open to other qualified students.

223. Biochemistry. (For Dental Students). II. 7 hr. PR: Organic Chem. A study of the chemical and physiochemical processes which take place in the human body.

231. Biochemistry. (For Medical Students, First Year). I. 8 hr. PR: Organic Chem. Content similar to that of Biochem. 223.

237. Seminar in Biochemistry. I, II. 1-6 hr. (1 hr. per sem.) PR or Conc: Biochem. 223 or 231. Presentation and discussion of special topics.

239. Clinical Chemical Techniques. (Primarily for Medical Technology Students). II. 4 hr. PR: Biochem. 139, 223, or 231. Open to other qualified students.

330. Biochemical Preparations. I, II. 2-5 hr. PR: Biochem. 223 or 231 or equiv. Emphasis on biochemical methods.

331. Radiobiology. II. 3 hr. PR: Biochem. 231 or 223 or equiv. Emphasis on nature and measurement of radioisotopes and their biological applications.

332. Enzyme Kinetics. II. 3 hr. PR: Biochem. 139, 223, or 231. For graduate students or other properly qualified students. An introduction to the physical mechanisms of enzyme action.

333. Research in Biochemistry. I, II, S. 1-6 hr. PR: Biochem. 231 or equiv.

334. Special Topics. I, II, S. 1-6 hr. PR: Consent.

337. Biochemistry of the Amino Acids and Proteins. I. 3 hr. Agr. Biochem. 290 or Med. Biochem. 231. Offered in 1965-1966 and every third year.

338. Hormones, Nature and Action. I. 2 hr. PR: Agr. Biochem. 290 or Med. Biochem. 231. Offered in 1964-65 and every third year.

MICROBIOLOGY

Professor Slack; Assistant Professors Burrell, Deal, Gerencser, Hall, and Mascoli.

26. Microbiology. II. 3 hr. (For students in the Paramedical Sciences). A study of pathogenic microorganisms.

220. Pathogenic Microbiology. (For Pharmacy Students). II, S. 5 hr. PR or conc: Chem. 238 (organic). A detailed study of pathogenic microorganisms.

221. Microbiology. (For Medical Students, Second Year). I. 7 hr. PR or conc: Organic Chem.; Biochem. desirable. A detailed study of pathogenic microorganisms.

222. Parasitology. (For Medical Students, Second Year). II. 2 hr. PR: Consent. Introduction to animal organisms as human pathogens and vectors of disease.

223. Pathogenic Microbiology. (For Medical Technology Students). II. 5 hr. PR or conc: Organic Chem. A detailed study of pathogenic microorganisms.

224. Parasitology. (For Medical Technology Students). II. 4 hr. PR: Consent. Study of animal parasites and vectors of disease.

225. Microbiology. (For Dental Students). I. 5 hr. PR: Biochem. A detailed study of pathogenic microorganisms.

226. Basic Microbiology. I. 4 hr. PR: Consent. A detailed review of the major groups of microorganisms including morphology and physiology. Primarily for graduate students.

227. Special Problems in Microbiology. I, II, S. 1-6 hr. PR: Microbiol. 221 or equiv.

228. Diagnostic or Determinative Microbiology. I, II, S. 1-6 hr. PR: Microbiol. 221 or equiv. Diagnostic procedures as aids to diagnosis of human diseases and methods for the identification of microorganisms.

321. Bacterial Physiology. I. 4 hr. PR or conc: Microbiol. 221 or equiv. and Biochem. Physiological studies on bacteria including nutrition, metabolic pathways, growth and death.

322. Microbial Genetics and Cytology. II. 4 hr. PR: Microbiol. 221 or equiv. Principles of microbial genetics and advanced cytological techniques.

323. Immunology. II. 4 hr. PR: Microbiol. 221 or equiv. A thorough study of antigens, antibodies, and their reactions both *in vitro* and *in vivo* and including the hypersensitivity phenomenon.

324. Virology. II. 4 hr. PR: Microbiol. 221 or equiv. A study of human, animal, and bacterial viruses.

325. Medical Mycology. I. 3 hr. PR: Microbiol. 221 or equiv.; Mycology 203 and 330 are recommended. A study of the fungi which infect humans with the emphasis on isolation and identification.

326. Seminar. I, II, S. 1-6 hr. PR: Microbiol. 221 or equiv. This will include the history of microbiology.

327. Research in Microbiology. I, II, S. 1-6 hr. PR: Microbiol. 221 or equiv.

PATHOLOGY

Professor Albrink; Associate Professors Conn, Kelln, and Stuart; Assistant Professors Fink and Napoli; Instructors Chamberlain and Jarvis; Clinical Assistant Professors Diaz-Perez, Laqueur, and Tolstoi; Clinical Instructor Giarritta.

228. Pathology. (For Dental Students). II. 4 hr. PR: Microscopic Anat. 209. A study of disease processes with emphasis upon fundamentals.

251. General Pathology. (For Medical Students, Second Year). I. 10 hr. PR: Consent. Includes gross and microscopic studies with demonstrations. (Note: Appropriate material in Clinical Pathology is integrated in Path. 251 and 252).

252. General Pathology. (For Medical Students, Second Year). II. 8 hr. PR: Consent. Includes gross and microscopic studies and materials in clinical pathology.

253. Oral Pathology. (For Dental Students). I. 3 hr. A study of the etio of the diseases of the teeth and their investing structures.

256. Advanced Pathology. I, II. 3 hr. PR: Consent, Path. 228 or 251. M scopic and gross specimens from selected autopsies.

351. Research. I, II. 1-6 hr. PR: Consent.

PHARMACOLOGY

Professors Saxe and Watts; Associate Professors Darby and Kenny; Assistant fessors Fleming and Robinson; Instructors Schmidt and Westfall.

60. Pharmacology. II. 3 hr. (For students in the Paramedical Sciences). P ology, chemistry, pharmacodynamics, toxicology, and therapeutic use of d as used in nursing practice.

260. Pharmacology. (For Dental Students). I. 5 hr. PR: Physiology. Chemi pharmacodynamics, toxicology, and therapeutic use of drugs.

261. Fundamentals of Pharmacology. (For Pharmacy Students). I. 5 hr. Physiology. Classification, pharmacodynamics and toxicology of therap agents.

262. Pharmacology. (For Medical Students, Second Year). II. 6 hr. PR: P ology. Chemistry, pharmacodynamics, toxicology, and therapeutic use of d

265. Seminar in Pharmacology. I, II. 1 hr. per sem. PR or conc: Pharm 262 or graduate status in basic medical sciences.

360. Special Topics in Pharmacology. I, II, S. 1-6 hr. per sem. Assigned s in pharmacodynamics, autonomic and cardiovascular pharmacology, ch therapy, bioassay and the biochemistry of drug action.

362. Advanced Pharmacology. I, II, S. 1-6 hr. per sem. PR: Pharmacol. 26 equiv. Lectures and laboratory study in advanced phases of pharmaco development of research techniques.

367. Research in Pharmacology. I, II, S. 1-6 hr. per sem. PR: Pharm 262 or equiv.

PHYSIOLOGY

Professors Northup, Penrod, Stickney, Van Liere; Associate Professor Lini Assistant Professors Blount and Gladfelter.

101. Principles of Human Physiology. I. 3 hr. (For students in the Parame Sciences). Normal functions of the human organism. Lecture, demonstra and laboratory.

141. Elementary Physiology. I. 4 hr. (For Pharmacy and Medical Techn Students). PR: Biol. 1, 2, or Zool. 1, 2; PR: or conc: Chem. 131 (or chem.).

241. Human Physiology. (For Medical Students, First Year). II. 9 hr. PR: C parative Anat., Biochem. 231. A study of the functions of organs.

243. Human Physiology. (For Dental Students). I. 6 hr. PR: General Z Organic Chem. Normal functions of the body with emphasis on aspects taining to dentistry.

244. Seminar in Physiology. I, II. 1-6 hr. (1 hr. per sem.). PR: Graduate st

340. Special Topics. I, II, S. 1-12 hr.

342. Advanced Physiology. I, II, S. 1-6 hr. per sem. PR: Physiol. 241 or 243 or equiv. Historical review, discussion of latest developments.

344. Introduction to Biophysics. S. 2 hr. PR: Biol. 2 or Zool. 2, college algebra.

346. Research in Physiology. I, II, S. 1-12 hr.

The School of Dentistry

GENERAL INFORMATION

ADMINISTRATION

Adminstration within the School of Dentistry is the responsibility of the Dean, who is assisted in this function by the Faculty Council of the School of Dentistry. The Council is made up of those full professors who are also chairmen of their respective departments and divisions which are involved in the teaching of dental students. Its general purpose is to serve in an advisory capacity to the Dean in carrying out the established policies of the School of Dentistry and of the University.

ADMISSION

See page 76 for admission information for the School of Dentistry, and also the *Announcements* of the Medical Center (Vol. III).

CURRICULUM

The School of Dentistry of West Virginia University offers an undergraduate program of education consisting of four academic years. The requirements for admission (see page 76) and the curriculum conform to standards established by the national accrediting agency for dental education, the Council on Dental Education of the American Dental Association. These standards also are generally accepted by the American Association of Dental Schools. Students are required to take all courses listed for each semester of each year in the Curriculum Plan on page 376. They must complete each course satisfactorily in order to enroll for the courses in the succeeding year.

At the present time, only the degrees of Doctor of Dental Surgery and B.S. in Dental Hygiene are offered by the School of Dentistry. However, it is possible to earn advanced degrees granted by West Virginia University in certain basic sciences which are closely related to dentistry. A program leading to the Master of Science degree is available in the field of microanatomy and organology. Programs leading to the Master of Science and the Doctor of Philosophy degrees are available in biochemistry, gross and neurological anatomy, microbiology, pharmacology, and physiology. Detailed information concerning admission requirements, courses of study, etc., in the various graduate programs may be obtained from the office of the Dean.

While graduate programs leading to advanced degrees in the dental sciences remain in the planning stage, the School of Dentistry is active in continuing education on a non-degree basis. Dental internships are available, and many postgraduate refresher courses are offered throughout the year.

REQUIREMENTS FOR THE DEGREE

A candidate for graduation may be recommended by the faculty of the School of Dentistry to the Board of Governors for its approval and for the conferring of the degree of Doctor of Dental Surgery, provided he meets fully the following conditions:

1. He shall have been in regular attendance in the School of Dentistry for the full four years, or, upon transfer, for the last two years of the course.

2. He shall have completed the prescribed requirements for each of the four years.

3. He shall have shown during his time in the School of Dentistry that he is of good moral character and shall have demonstrated a sense of professional responsibility in the performance of his assignments as a student.

4. He shall have met in full all financial obligations to the University.

5. He shall present himself at the time and place designated for the conferring of the degree.

BACHELOR OF ARTS IN PRE-DENTISTRY

The College of Arts and Sciences of West Virginia University offers a Bachelor of Arts degree in Pre-Dentistry to qualified students who successfully complete a special predental curriculum and one full year of instruction in an accredited school of dentistry. Complete details of the program will be found in the *Anouncements* of the College of Arts and Sciences.

CURRICULUM PLAN

		Clock Hours							
		1st Semester		*2nd Semester*		*Year Totals*			*Credit*
FRESHMAN YEAR		*Lect.*	*Lab.*	*Lect.*	*Lab.*	*Lect.*	*Lab.*	*Clinic*	*Hr.*
209	Microanatomy	48	144			48	144		6
210	Dental Anatomy	16	96			16	96		3
212	Dental Materials	16	96			16	96		3
206	Gross Anatomy	32	96	32	96	64	192		8
208	Neuroanatomy			16	64	16	64		2
223	Biochemistry			80	96	80	96		7
213	Prosthodontics			16	96	16	96		3
211	Comp. Dental Anatomy			16	16	16	16		1
	TOTALS	112	432	160	368	272	800		33
SOPHOMORE YEAR									
225	Microbiology	32	128			32	128		5
243	Physiology	64	80			64	80		6
229	Operative Dentistry	16	96	8	48	24	144		5
234	Prosthodontics	16	48	16	96	32	144		5
236	Crown & Bridge Dent.	16	96	16	96	32	192		6
228	Pathology			32	96	32	96		4
233	Pedodontics*			8	48	8	48		1
240	Periodontics*			8	24	8	24		1
242	Endodontics*			8	24	8	24		1
239	Anesthesiology			16		16			1
245	Orthodontics			16		16			1
226	Oral & Written Communication			32		32			2
	TOTALS	144	448	160	432	304	880		37

		Clock Hours							
		1st Semester		2nd Semester		Year Totals			Credit
		Lect.	Lab.	Lect.	Lab.	Lect.	Lab.	Clinic	Hr.
JUNIOR YEAR									
253	Oral Pathology	32	48			32	48		5
260	Pharmacology	64	48			64	48		5
255	Endodontics	8		8		16		30	2
264	Oral Diagnosis	16		16		32		28	2
258	Operative Dentistry	16		16		32		150	4
267	Oral Roentgenology	16	16			16	16	28	2
259	Oral Surgery	16		16		32		56	3
261	Pedodontics	16				16		40	2
263	Periodontics	8		8		16		30	2
268	Principles of Medicine			32		32			2
250	Prosthodontics	16	32			16	32	85	3
257	Crown & Bridge Dentistry	16				16		75	2
265	Orthodontics				32		32	20	1
270	Ceramic Technics			16	48	16	48		2
	Totals	224	144	112	80	336	224	542**	37
SENIOR YEAR									
279	Physical Diagnosis	16				16			1
294	Practice Administration	16				16			1
280	Endodontics							50	1
283	Operative Dentistry	16				16		250	5
287	Oral Diagnosis							42	1
284	Oral Surgery	16		16		32		84	4
285	Orthodontics	16				16		40	2
286	Pedodontics							80	2
276	Prosthodontics	16				16		150	4
277	Periodontics	16				16		50	2
289	Crown & Bridge Dentistry	16				16		150	4
295	Jurisprudence	16				16			1
296	Oral Roentgenology							42	1
290	Ethics			16		16			1
291	History of Dentistry			16		16			1
288	Principles of Medicine			16		16			1
297	Public Health Dentistry			16		16			1
299	Research in Dentistry								3
	Totals	144		80		224		938**	36

*Class meets for eight weeks.
**Allocation of clinic time is estimated on a yearly basis.

COURSES OF INSTRUCTION

Each course given by the School of Dentistry is designated by the name of the department teaching it, its number and title, the semester in which it is offered, and its hours of credit. Courses numbered 200–224 are for freshmen; 225–249 are for sophomores; 250–274 are for juniors; and 275–299 are for seniors.

For a description of those Basic Science courses which are a part of the dental curriculum, see pages 371-375.

CROWN AND BRIDGE DENTISTRY

Professor Adams; Assistant Professor Mazur; Instructor T. J. Martin.

236. Crown and Bridge Technics. Yr. 6 hr. Lectures and laboratory exercises on the principles and technics of crown and bridge prosthodontics.

257. Clinical Crown and Bridge Dentistry. Yr. 2 hr. Procedures employed in clinical practice, including the study of types of dental bridges, their indications, and their contra-indications.

270. Ceramic Technics. II. 2 hr. Lectures and laboratory exercises in the application of dental porcelain and acrylic resins in crown and bridge prostheses.

289. Clinical Crown and Bridge Dentistry. Yr. 4 hr. Clinical practice of crown and bridge prosthodontics, with emphasis on problems related to diagnosis and construction of the more complex dental bridges.

DENTAL ANATOMY

Assistant Professor H. H. Boyers; Instructor C. G. Bennett.

210. Dental Anatomy. I. 3 hr. Lectures and laboratory projects in the form and function of the human dentition throughout life; the relation of the teeth to one another and to surrounding structures.

211. Comparative Dental Anatomy. II. 1 hr. The evolutionary development of the human dentition based on a comparative study of the teeth and jaws of the vertebrates.

DENTAL MATERIALS

Associate Professor Overberger.

212. Dental Materials. I. 3 hr. A study of the composition, the physical, chemical, mechanical, and manipulative properties, and the technical uses of dental restorative materials.

ENDODONTICS

Professor Biddington; Instructor Stevens.

242. Endodontic Technics. II. 1 hr. Lectures and laboratory exercises to prepare the student to treat the various problems related to the dental pulp and the periapical tissues.

255. Clinical Endodontics. Yr. 2 hr. Lectures on the etiology, diagnosis, treatment planning, treatment, and prognosis of the diseases of the dental pulp and their sequelae. Application of basic endodontic principles and preclinical sciences is stressed in performing clinical therapy.

280. Clinical Endodontics. Yr. 1 hr. A clinical course in the diagnosis and treatment of the more advanced endodontic problems.

MEDICINE

Professor Flink and Staff.

268. Principles of Medicine. II. 2 hr. A study of those diseases that are included in the practice of internal medicine about which the dentist should have sufficient knowledge for intelligent cooperation with the physician in rendering an effective total service to the patient.

279. Physical Diagnosis. I. 1 hr. To acquaint the student with procedures to be followed in making a thorough diagnosis; to instruct him in symptomatology of the more common general diseases, particularly those that may be dentally connected; and to instruct him in outlining an indicated treatment.

288. Principles of Medicine. II. 1 hr. A further study of general diseases about which the dental student should have intelligent working knowledge. Patients with diseases particularly important to dentists are demonstrated to the class, and discussion of the pathological physiology, treatment, etc., is presented.

OPERATIVE DENTISTRY

Professors Sausen and Randolph; Assistant Professors H. H. Boyers and Chastain; Instructors C. E. Bennett, Jr. and Wilson.

229. Operative Technics. Yr. 5 hr. A preclinical course in the nomenclature of operative dentistry, principles of cavity preparation, manipulation of restorative materials, and related instrumentation.

258. Clinical Operative Dentistry. Yr. 4 hr. A study of the diseases and abnormalities of the hard tissues of the teeth, the technical procedures followed and the materials used in the treatment of these conditions, and biological reactions of the tissues. Introduction to clinical practice, with emphasis on treatment planning.

283. Clinical Operative Dentistry. Yr. 5 hr. A further development of operative procedures taught in Operative Dentistry 229 and 258, extended to include emphasis on complex cases and with attention to the improvement of efficiency and finesse in operating.

ORAL DIAGNOSIS

Associate Professors Graham and Kelln; Assistant Professors Brown and Phillips.

264. Oral Diagnosis. Yr. 2 hr. Lectures and clinical demonstrations designed to teach the methodical recognition of oral problems. The fundamental principles and procedures of oral diagnosis are stressed in the lectures, while their practical application is emphasized in the clinic.

287. Clinical Oral Diagnosis. Yr. 1 hr. Further clinical application of principles presented in Oral Diag. 264, extended to include special problem presentations which provide opportunities for independent observation and analysis.

ORAL ROENTGENOLOGY

Associate Professors Graham and Kelln; Assistant Professors Brown and Phillips.

267. Oral Roentgenology. Yr. 2 hr. The theory and practice of the use of roentgen rays as an aid to oral diagnosis.

296. Clinical Oral Roentgenology. I. 1 hr. Further clincal experience in oral roentgenology through the periodic assignment of students in the department.

ORAL SURGERY

Professor Campbell; Assistant Professors Davidson and Welch; Instructors Bird and Comley.

239. Anesthesiology. II. 1 hr. Introduction to general anesthesia; lectures on local anesthesia, including types, modes of action, indications, and contra-

indications for use. Premedication, anesthetic solutions, toxic effects, and technics of adminstration are discussed.

259. Oral Surgery. Yr. 3 hr. Didactic instruction and clinical experience in surgical principles and the extraction of teeth. The course includes classification and technics for the surgical removal of impactions.

284. Clinical Oral Surgery. Yr. 4 hr. Didactic instruction in the diagnosis and the surgical and adjunctive treatment of the diseases, injuries, and defects of the human jaws and associated structures. Practical training is obtained by daily and weekly assignments within the Oral Surgery clinic and by part-time assignments in the University Hospital.

ORTHODONTICS

Professor Sassouni; Instructor H. Martin.

245. Principles of Orthodontics. II. 1 hr. Lectures on dental occlusion and its ramifications, including the etiology and classifications of malocclusions.

265. Orthodontic Technics. II. 1 hr. Technical instruction in taking records and in the construction of orthodontic appliances.

285. Clinical Orthodontics. I. 2 hr. Treatment planning, case presentation, clinical practice, and seminars concerning treatment of simple malocclusions, adjunctive treatment, and problems of retrusion.

PEDODONTICS

Professor Poleway; Instructor C. G. Bennett.

233. Pedodontic Technics. II. 1 hr. A study of the principles involved in the treatment of diseased or damaged teeth of children. Appliance technics useful in children's dentistry are included.

261. Clinical Pedodontics. Yr. 2 hr. Lectures and clinical practice in the diagnosis and treatment of diseased, damaged, or abnormal conditions of the primary dentition.

286. Clinical Pedodontics. Yr. 2 hr. Clinical instruction in child management, children's diseases affecting the dentition, interceptive and preventive orthodontics, and the application of restorative procedures essential in the treatment of the child.

PERIODONTICS

Professor Fraleigh; Instructor Dempsey.

240. Periodontic Technics. II. 1 hr. The histopathology of periodontal disease and its treatment, with emphasis on correct instrumentation as related to the histology and physiology of the tissues involved.

263. Clinical Periodontics. Yr. 2 hr. Clinical diagnosis, classification, and treatment of periodontal diseases with instruction in etiology, diagnosis, treatment planning, and prognosis.

277. Clinical Periodontics. Yr. 2 hr. Clinical application of the principles taught in preceding courses, emphasizing the relation of the preclinical or basic sciences to therapy in the clinical practice of periodontics.

PROSTHODONTICS

Professor Davis; Associate Professor Overberger; Assistant Professor F. E. Boyers.

213. Complete Denture Technics. II. 3 hr. Principles and procedures followed in the construction of complete dentures.

234. Partial Denture Technics. Yr. 5 hr. Principles and procedures followed in the construction of removable partial dentures.

250. Clinical Prosthodontics. Yr. 4 hr. Lectures, demonstrations, and clinical practice in methods of full and partial denture prosthesis.

276. Clinical Prosthodontics. Yr. 4 hr. Instruction in diagnosis, treatment planning, and clinical practice in the art of full and partial denture construction.

SOCIAL RELATIONS

Professors Randolph and Morris; Assistant Professors F. E. Boyers, Brown, and Howard; Special Lecturer Guine.

226. Oral and Written Communication. II. 2 hr. Lectures on the preparation and uses of oral and written communication; the use of the dental library; oral presentation of discussions and reports.

290. Ethics. II. 1 hr. Fundamental principles of ethics and their application in dental practice. The ethical obligations of the dentist to his patient, the community, society, and his colleagues in all the health sciences.

291. History of Dentistry. II. 1 hr. Study of origin and development of dentistry.

294. Practice Administration. I. 1 hr. A course designed to prepare the student for the effective management of his total professional responsibilities, both in and outside his office.

295. Jurisprudence. I. 1 hr. Lectures designed to acquaint the dental student with the fundamental legal rights, obligations, and responsibilities of the dentist.

297. Public Health Dentistry. II. 1 hr. Emphasis on public health practices designed to reduce the occurrence or the extension of dental diseases; to identify the place dental public health occupies in the field of general public health; and to acquaint the students with methods and materials suitable for use in administering dental public health programs.

SPECIAL COURSES

299. Research in Dentistry. II. 3 hr. Completion of a research project and preparation of a supporting thesis designed to: (1) give the student a better understanding of the methods and procedures used in research and a fuller appreciation of its value in dentistry; and (2) enhance the student's ability to discover, evaluate, arrange, and present his findings in a professional manner.

Division of Dental Hygiene

Miss Pauline F. Steele, *Director*

GENERAL INFORMATION

The dental hygiene program is conducted under the administration of the School of Dentistry. The curriculum, a four-year degree program for students in dental hygiene, is an integration of liberal arts courses with specific dental hygiene subjects. Such a program affords the dental hygiene student an excellent opportunity to receive not only a well-rounded basic education but also to become a member of a specialized profession. Upon the fulfillment of all prescribed requirements, and with the recommendation of the School of Dentistry, the candidate shall be awarded the degree of Bachelor of Science in Dental Hygiene.

CURRICULUM

In the first year, the major portion of the subject content is in the liberal arts area, with only a few credit hours assigned to specific dental hygiene courses. In succeeding years, however, more time is devoted to the dental hygiene major and less time given to the liberal arts subjects. The basic curriculum has been constructed to conform to the accreditation requirements of the Council on Dental Education of the American Dental Association.

CURRICULUM PLAN

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biology 1	4	Biology 2	4
Humanities 1	4	Humanities 2	4
Dental Hygiene 1	2	Dental Hygiene 2	2
Electives (preferably non-scientific)	3	Electives (preferably non-scientific)	3
Physical Education	1	Physical Education	1
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chemistry 1	4	Chemistry 2	4
Public Speaking 11	3	Psychology 1	3
Oral Anatomy 110	3	Microbiology 26	3
Human Anatomy 101	3	Oral Histology 109	2
Physical Education	1	Personal and Community Health 2	2
Elective	3	Physical Education	1
		Elective	3
	17		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Physiology 101	3	Human Growth and Development 106	3
Human Growth and Development 105	3	Clinical Dental Hygiene 126	3
Dental Hygiene Technics 125	3	Oral Roentgenology 132	2
Pathology 128	3	Dental Materials 135	3
Nutrition 1	3	Pharmacology 60	3
Elective	3	Elective	3
	18		17

FOURTH YEAR

First Sem.	*Hr.*
Dental Health Education 150	2
Clinical Dental Hygiene 155	5
Dental Hygiene Seminar 160	2
Ethics and Jurisprudence 163	2
Dental Nursing Technics 170	1
Sociology 102	3
Elective	3
	18

Second Sem.	*Hr.*
Public Health 172	2
Advanced Clinical Dental Hygiene 156	5
Economics & Practice Administration 164	1
Dental Hygiene Seminar 161	2
Technical Expression and Dental Literature 166	2
Oral Surgery & Anesthesiology 159	2
Elective	3
	17

COURSES OF INSTRUCTION

1. Dental Hygiene. I. 2 hr. Orientation. An introductory course in the historical development of the dental hygiene program.

2. Dental Hygiene. II. 2 hr. Orientation. A survey of the scope of service, literature, education, ethics, professional organization, and opportunities in the area of dental hygiene.

109. Oral Histology. II. 2 hr. A study of the histological structure of the teeth and tissues of the oral cavity and the morphological development of these structures.

110. Oral Anatomy. I. 3 hr. The study of the human teeth and other structures of the oral cavity; the relation of the teeth to one another and to surrounding tissues; reproduction of tooth forms by drawing and carving.

125. Dental Hygiene Technics. I. 3 hr. A study of the fundamental principles of dental hygiene through lectures and laboratory participation.

126. Clinical Dental Hygiene. II. 3 hr. Lectures and clinical application of dental hygiene principles and technics.

128. Pathology. I. 3 hr. A study of the nature of diseases affecting the body, with particular emphasis on those affecting the hard and soft tissues of the oral cavity.

132. Oral Roentgenology. II. 2 hr. Introduction to the basic principles and procedures in radiographic technics.

135. Dental Materials. II. 3 hr. A study of the sources, the methods of manufacture, the physical and chemical properties, and the manipulation of restorative materials used in dentistry.

150. Dental Health Education. I. 2 hr. Methods, materials, and resources used in the teaching of dental health education to various population groups.

155. Clinical Dental Hygiene. I. 5 hr. Weekly class period devoted to lectures, demonstrations, or reports supplementing clinical dental hygiene practice. Practical rotating clinical experience is obtained through assignments to the different departments in the School of Dentistry.

156. Advanced Clinical Dental Hygiene. II. 5 hr. Weekly group discussions of problems related to clinical aspects of dental hygiene. Further practical experience is obtained by assignments in the dental hygiene clinic and in the various departments in the School of Dentistry.

159. Oral Surgery and Anesthesiology. II. 2 hr. Lectures on the basic principles and procedures of oral surgery as related to the role of the dental hygienist Introduction to the fundamental concepts of both local and general anesthesia.

160. Dental Hygiene Seminar. I. 2 hr. Series of diversified lectures to broaden the student's knowledge in the different aspects of dentistry.

161. Dental Hygiene Seminar. II. 2 hr. A sequence of special lectures to increase the student's information on current trends and advances in dentistry.

163. Ethics and Jurisprudence. I. 2 hr. A course of study in the basic principles of professional responsibilities and organizational procedures. Statutes governing the dental hygienist will be reviewed.

164. Economics and Practice Administration. II. 1 hr. Principles of public relations and general office management.

166. Technical Expression and Dental Literature. II. 2 hr. Lectures on the preparation and uses of oral and written communication; introduction to methods of library research and a review of dental literature.

170. Dental Nursing Technics. I. 1 hr. A course with emphasis on emergency first aid and principles of nursing applicable to the dental office.

172. Public Health. II. 2 hr. A survey of the theory and practice of preventive dentistry and the basic philosophy of public health concepts.

The School of Medicine

WHEN TO APPLY FOR ADMISSION

Application for admission in September, 1964, should be made promptly upon completion of the 1962-63 school year (June, 1963). The latest date for filing an application for September, 1964 is December 1, 1963.

ACCREDITATION

The School of Medicine of West Virginia University is a member of the Association of American Medical Colleges and is approved by the Council on Medical Education and Hospitals of the American Medical Association.

MEDICAL COLLEGE ADMISSION TEST

The scores on the Medical Center Admission Test are used by the Committee on Admissions in considering an applicant for admission. No final action will be taken on an application until this score is received. For this reason, it is highly desirable that students take the test in the spring prior to making application for admission. Information concerning the time and place the test is given can be obtained from your Premedical adviser or committee or by writing to the Medical College Admission Test, The Psychological Corporation, 304 East 45th Street, New York 17, New York.

PERSONAL INTERVIEW

Each applicant is interviewed by members of the Committee on Admission and Advancement before a final decision is made on any application. The applicant is notified of the time and place of the interview.

CURRICULUM PLAN

		1st Semester		*2nd Semester*		*Year Total*		*Credit*
		Lect.	*Lab.*	*Lect.*	*Lab.*	*Lect.*	*Lab.*	*Hours*
FIRST YEAR								
Biochemistry	231	64	128			64	128	8
Microanatomy	205	64	128			64	128	6
Gross Anatomy	201	64	80	48	96	112	176	12
Neuroanatomy	203			48	64	48	64	5
Physiology	241			112	128	112	128	9
TOTALS		192	336	208	288	400	624	40
SECOND YEAR								
Medicine	221					32	64	4
Medicine	223					16	0	1
Microbiology	221	48	144			48	144	7
Pathology	251	96	160	64	96	160	256	17
Microbiology	222			16	32	16	32	2
Pharmacology	262			80	96	80	96	6
Health & Prev. Med.	222					32	0	2
Psychiatry	221					16	0	1
Conjoined Course	221					16	0	1
TOTALS		144	304	160	224	416	592	41

THIRD AND FOURTH YEARS

During the 24 months between the completion of the second year and the granting of the degree, each student will be in school a total of 21 months, with one 3-month vacation period at some time during this interval.

Thus can be provided the rotation of student groups through clerkships in the major hospital services, followed by integrated activities in the out-patient clinics. Appropriate lectures, seminars and conferences offer a graduated and progressive learning experience.

Each student will be expected to spend one 3-month period in an individually selected experience involving either laboratory or clinical investigation (or both). This quarter may be spent in any department at the West Virginia University Medical Center or, upon approval, at some other institution.

The following table illustrates the rotation of one class through the experiences of the clinical years.

TABLE SHOWING SCHEDULE FOR CLINICAL YEARS, BEGINNING JUNE 1962

Experiences	Sum.	Fall	Wint.	Spr.	Sum.	Fall	Wint.	Spr.
Medical Clerkship	A	B	C	D				
Pediatrics Clerkship	B	A	D	C				
Surgery and Obstetrics Block			A	A	B & D	B & D	C	C
O.P.D. and Psychiatry Block			B	B	A & C	A & C	D	D
Electives	C	D					A	B
Vacation	D	C					B	A

COURSES OF INSTRUCTION

MEDICINE

Professors FLINK and SLEETH; Clinical Professor WHITTLESEY; Associate Professors M. J. ALBRINK, ANDREWS, and MARSHALL; Clinical Associate Professors LAWLESS and MAXWELL; Assistant Professors ANDERSON, CONN, HARLEY, NELSON (Chairman, Division of Neurology), QUINTERO (Chairman, Division of Allergy), WELTON (Chairman, Division of Dermatology); Clinical Assistant Professors FERNANDEZ, C. JOHNSON, VAN LITH; Instructor J. JONES; Clinical Instructors EMAMI, GLICK, KOPPEL, MUTCH, PIATT, and STOUT.

221. PHYSICAL DIAGNOSIS. Yr. (Second Year). 4 hr. Examination of normal subjects. Practical experience in history taking and physical examination of patients.

223. HISTORY OF MEDICINE. Yr. (Second Year). 1 hr. Brief history of development of the art and science of medicine.

231. CLINICAL CLERKSHIP IN MEDICINE. (Third Year). CR. Required of third-year medical students. The individual student is assigned responsibility for specific patients from the hospital or out-patient service of the respective department in which he is serving at the time. He is an integral part of the team providing diagnostic and treatment services needed by the patient, under direct

supervision of members of the faculty of the department. The student elicits the patient's history, performs physical examinations, and performs or secures indicated laboratory and clinical studies. The student records his findings and presents case reports for discussion by members of the faculty during hospital rounds or out-patient clinics. The student attends such staff conferences, etc., as directed by the several departments. Clerkship in medicine occupies 12 weeks.

OBSTETRICS AND GYNECOLOGY

Professor Fugo; Research Professor Van Liere; Clinical Assistant Professors Greco and Thompson; Instructors Goplerud and Butcher.

231. Junior Lectures in Obstetrics and Gynecology. (Third Year). CR. Lectures in obstetrics and gynecology required of third-year medical students.

241. Clinical Clerkship in Obstetrics and Gynecology. (Fourth Year). CR. Six weeks experience for specific patient care including history taking, physical examination, laboratory analysis and clinical studies. Faculty and housestaff supervision as well as departmental and interdepartmental conferences are important components of this clerkship.

PEDIATRICS

Professor Klingberg; Assistant Professors B. Jones, Lucas; Clinical Assistant Professor Phillips.

231. Clinical Clerkship in Pediatrics. (Third Year). CR. Required of third-year medical students. See description of clinical clerkship under Med. 231 (above). Clerkship in Pediatrics occupies 6 weeks.

PSYCHIATRY

Professor Loftus; Associate Professor Goshen; Instructors Plutzky and Whitcomb.

221. Introductory Psychiatry. Yr. (Second Year). 1 hr. An introductory course of lecture and demonstration.

241. Clinical Clerkship in Psychiarty. (Fourth Year). CR. Required of fourth-year medical students. See description of clinical clerkship under Med. 231 (above). Clerkship in Psychiatry occupies 6 weeks.

HEALTH AND PREVENTIVE MEDICINE

Lecturer Viggiano.

222. Health and Preventive Medicine. (Second Year). 2 hr. PR: Consent. Introduction to principles of public health.

RADIOLOGY

Professor Amory; Associate Professor McProuty; Clinical Associate Professors Shaffer and J. D. H. Wilson; Clinical Instructor Harron.

SURGERY

Professors Zimmermann, Bloor (Chairman, Division of Neurosurgery), Gerwig, and Warden; Clinical Professor Pickett (Chairman, Division of Orthopedic Surgery); Associate Professors Craythorne (Chairman, Division of Anesthesiology), Milam (Chairman, Division of Urology), and Watne;

Clinical Associate Professors TROTTER (Chairman, Division of Ophthalomology) and YOUNG; Assistant Professors CURRIE, NUGENT, and YEAKEL; Clinical Assistant Professors HALL, HEISKELL, HUMPHRIES, MILLER, and M. PRIDE; Instructors MORAN and STOLAR; Clinical Instructors EASLEY, LINGER, THRUSH, WALKER, WILEY, J. E. WILSON, and R. S. WILSON.

231. CLINICAL CLERKSHIP IN SURGERY. (Third Year). CR. Required of third- or fourth-year medical students. See description of Clinical Clerkship under Med. 231. Clerkship in Surgery occupies 12 weeks.

CONJOINED COURSES

(Throughout the curriculum in medicine certain courses are conducted on non-departmental or inter-departmental lines. These have been designed as Conjoined Courses, and are described in the following section.)

211. CORRELATION CLINIC. Yr. (Second Year). 2 hr. Interdepartmental conferences relating basic sciences to clinical medicine.

221. INTRODUCTION TO CLINICAL SCIENCE. Yr. (Second Year). 2 hr.

241. OUT-PATIENT CLINIC. (Fourth Year). CR. Contact with and responsibility for patients visiting the outpatient clinics in Medicine, Obstetrics-Gynecology, Psychiatry, and Surgical Specialties.

Division of Medical Technology

REX B. CONN, JR., *Director*
BETHOLENE F. LOVE, *Associate Director*

Advisory Committee to Division of Medical Technology:
R. B. CONN, JR., *Chairman;* B. F. LOVE, W. S. ALBRINK, J. E. JONES, F. J. LOTSPEICH, C. MASCOLI, D. W. NORTHUP, and L. E. HEROD.

GENERAL INFORMATION

The program in Medical Technology at West Virginia University consists of two years of premedical technology and two years of medical technology. The Bachelor of Science Degree is awarded by the School of Medicine after satisfactory completion of the requirements outlined in this Bulletin.

The first two years of premedical technology may be taken in any institution of recognized standing which offers the courses required for admission into the medical technology curriculum. The College of Arts and Sciences of West Virginia University offers a premedical technology curriculum that meets these requirements.

The third year is a continuation of general education and the fourth year is 12 months of practical education in the University Hospital Laboratories. During these two years, the student is registered in the School of Medicine under the supervision of the Directors of the Division of Medical Technology.

The total program prepares the student for supervisory and staff positions in clinical, research, public health, and industrial laboratories. It also fulfills the requirements of the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists.

ACCREDITATION

Educational standards for medical technologists are under the general supervision of the Council on Medical Education and Hospitals of the American Medical Association. Graduates of this program are eligible for examination by the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists. Before the student is accepted into the fourth year (the clinical phase of medical technology) an approved transcript evaluation from the Registry of Medical Technologists must be on file in the offices of the Assistant Registrar, Medical Center.

DEGREE

The Bachelor of Science Degree in Medical Technology is granted to those students who have completed the prescribed curriculum and who have been recommended for the degree by the faculty of the School of Medicine.

CURRICULUM: PREMEDICAL TECHNOLOGY

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1, Inorganic	4	Chem. 2, Inorganic	4
English 1, Comp. & Rhetoric	3	English 2, Comp. & Rhetoric	3
Elective*	3	Math. 3	3
Biol. or Zool. 1, General	4	Biol. or Zool 2, General	4
Mil. or Air Sci. 1 (M)	2	Mil. or Air Sci. 2 (M)	2
Phys. Educ. (M and W)	1	Phys. Educ. (M and W)	1
Med. Tech. 1**	1	Med. Tech. 2**	1
	16-18		16-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233, Organic	4	Chem. 106, Quantitative	4
English or American Lit.	3	English or American Lit.	3
Elective*	3	Elective*	3
Physics 1, Introductory	4	Physics 2, Introductory	4
Mil. or Air Sci. 3 (M)	2	Mil. or Air Sci. 4 (M)	2
Phys. Educ. (W)	1	Phys. Educ. (W)	1
Med. Tech. 3**	1	Med. Tech. 4**	1
	16-17		16-17

*Electives: Students who plan to do graduate study are encouraged to take a foreign language as their elective.

Other recommended electives are: History 1, 2, 52, or 53; Sociology 1; Psychology 1.

**Medical Technology 1, 2, 3, and 4 are not required subjects, but it is highly recommended that all students take these courses.

MEDICAL TECHNOLOGY CURRICULUM

THIRD YEAR

(Medical Technology I)

The courses of this year give the student an introduction to the basic medical sciences.

During the first semester of this year students must take the University examination to test proficiency in English unless this requirement has been previously satisfied. Successful passing of this examination is a requirement for all baccalaureate degrees awarded by the University.

Courses required are as follows:

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Anat. 101	4	Parasitol. 224	4
Med. Tech. 100	3	Microbiol. 223	5
Biochem 139	5	Biochem. 239	4
Physiol. 141	4	Med. Tech. 101	4
	16		17

TOTAL ..... 33 hr.

FOURTH YEAR

(Medical Technology II)

The fourth year consists of 12 full months of instruction in the University Hospital Laboratories and includes the courses listed below. Students begin a rotation schedule in the clinical laboratories in June of their senior year. This schedule continues until the following June. Due to the nature of the profession, students may be required to be "on duty" at irregular hours at the discretion of the Directors.

Women students must live in approved University housing and must follow the rules and regulations for all senior women.

Approximately two weeks' vacation, exclusive of national holidays, will be allowed during the twelve months. If the student is absent more than one week due to illness, the time lost must be made up at the end of the school year.

Courses for which the student registers are as follows:

SUMMER SESSION

First Term	*Hr.*
Orientation 200	1
Second Term	
Metabolimetry and Electrocardiography	1

FALL AND WINTER SESSIONS

Clinical Microbiology and Serology 201	8
Immunohematology and Blood Banking 202	3
Clinical Chemistry 204	8
Laboratory Management and Records 205	1
Clinical Microscopy 206	2
Histological Technic 207	2
Clinical Hematology 208	8
Seminar 210, I	2
Seminar 210, II	2
Approximate Clock Hours for Senior year	2,000
Total Credit Hours for Senior year	38

COURSES OF INSTRUCTION

Associate Professors Conn and Love; Instructors Dahle, Hossaini, Jarvis, Moore, and Petracca; Teaching Supervisor Sharpe.

1. Orientation to Medical Technology. I. 1 hr. The principles and practices of medical technology, and the role of the medical technologist as a member of the health team.

2. Orientation to Medical Technology. II. 1 hr. Continuation of the work of the first semester.

3. Introduction to Medical Sciences. I. 1 hr. Lectures centered on case presentations of patients at the University Hospital. Serves to introduce the student to medical terms and illustrates the various aspects of patient care including the laboratory diagnostic procedures which the students will be doing during the third and fourth year.

4. Introduction to Medical Sciences. II. 1 hr. Continuation of the work of first semester.

100. Medical Technology. I. 3 hr. A study of the elements of histological structure with emphasis on the preparation of tissues for study and on the study of blood cells. Lecture 3 hr. per week; lab. 3 hr.

101. Clinical Laboratory Diagnostic Methods. II. 4 hr. A study of procedures used in the clinical laboratories. Lect. 2 hr. per week; lab. 6 hr.

200. Orientation. S. 1 hr. (For Senior Students). The principles and practices of medical technology in relation to the hospital and clinics.

201. Clinical Microbiology. I, II, and S. 8 hr. Twelve weeks of instruction in bacteriology, mycology, parasitology, and serology.

202. Immunohematology and Blood Banking. I, II, and S. 3 hr. Four weeks of instruction in blood banking. Laboratory procedures required for transfusions, preservation of blood and blood derivatives, and antibody studies.

203. Metabolimetry and Electrocardiography. S. 1 hr. Technique of basal metabolism; study of the electrocardiograph machine and its use.

204. Clinical Chemistry. I, II, and S. 8 hr. Nine weeks of instruction in the procedures used in the clinical chemistry laboratory and three weeks of advanced instruction in more specialized technics.

205. Laboratory Management and Records. II. 1 hr. A study of laboratory organization, economics, ethics, and records.

206. Clinical Microscopy. I, II, and S. 2 hr. Three weeks of instruction in urine analysis, gastric analysis, pregnancy tests, and other procedures.

207. Histological Technic. I, II, and S. 2 hr. Three weeks of instruction in the preparation of human tissues and organs for gross and microscopic examination.

208. Clinical Hematology. I, II, S. 8 hr. Twelve weeks of instruction in laboratory methods used in study of hematologic disorders.

210. Seminar. I, II. 1-4 hr. Each student is required to present at least one seminar during each term on some phase of medical technology.

The School of Nursing

GENERAL INFORMATION

The School of Nursing is one of 15 schools and colleges functioning within the administrative framework of West Virginia University. All resources of the University are available to the School, and the curriculum is designed to enable nursing students to enjoy the same privileges and responsibilities as other University students.

The School offers a basic collegiate program for high school graduates who wish to prepare for careers in professional nursing. The program consists of four academic years leading to the Bachelor of Science degree in nursing. Its graduates qualify for admission to state licensing examinations.

The curriculum, which has come to be known throughout the country as "The West Virginia Plan," stresses the unity of nursing. It is designed to provide learning experiences of increasing depth, moving from the simple to the complex in all phases of clinical nursing as the student progresses through the course of study. All upper-division courses in the nursing major are built upon prerequisites at the lower-division level. For example, the student studies maternity nursing as a sophomore, again as a junior, and again as a senior. The same is true in each clinical nursing subject, including public health nursing. This plan enables the learner to return to each clinical field after adding to her knowledge in other fields of nursing and in general education courses.

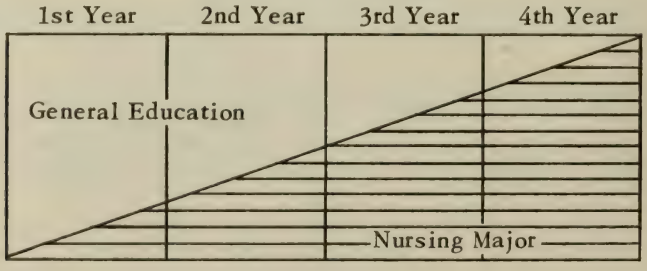
ACCREDITATION

West Virginia University is accredited by North Central Association of Colleges and Secondary Schools and other accrediting agencies. The School of Nursing, established in 1960, has been granted accreditation status appropriate to a new school, that of provisional accreditation, by the West Virginia Board of Examiners for Registered Nurses—thereby enabling its graduates to take the licensing examinations to qualify as registered nurses. Application for national accreditation and for full State accreditation will be made as soon as this is permissible—in the spring of 1964.

CURRICULUM PLAN

The curriculum, leading to a baccalaureate degree with a major in nursing and a minor in social sciences, consists of four academic years of study offering general education and nursing courses simultaneously throughout. During the first and second years general education courses predominate; during the third and fourth years nursing courses increase and general education courses decrease.

Curriculum Design



The curriculum includes courses taught by other schools and departments of the University, as well as the nursing courses taught by faculty of the School of Nursing. Descriptions of non-nursing courses are given in the *Announcements* of the appropriate school or department.

COURSES OF INSTRUCTION

Nsg.

1. Orientation to Nursing. I. 2 hr. Survey of the role of the professional nurse as a member of the health team.

2. The Nurse in Western Culture. II. 2 hr. Historical approach to the development of nursing with emphasis on its accommodation to changing social, cultural, economic, and health concepts.

10. Introduction to Nursing. I, II. 2 hr. Introduction of concepts and procedures basic to professional nursing practice.

20. Principles of Medical-Surgical Nursing. I, II. 2 hr. Introduction of concepts, principles and practices which have special application in the nursing care of patients with medical or surgical illnesses.

30. Principles of Child Health. I, II. 2 hr. Introduction to concepts, principles and practices basic to maintenance of health of children.

40. Principles of Maternity Nursing. I, II. 2 hr. Introduction to concepts, principles and practices basic to maternity nursing.

50. Emotional Aspects of Illness. I, II. 2 hr. Introduction of concepts, principles and practices basic to an understanding of the emotional aspects of illness.

60. Introduction to Community Nursing. I, II. 2 hr. Introduction of concepts, principles and practices basic to an understanding of community health.

120. Medical-Surgical Nursing. I, II. 4 hr. PR: Junior standing. Study of major adult health problems arising from physiologic adaptations to illness. Emphasizes nursing care necessitated by specific adaptive responses and therapeutic management. Eight weeks instruction and clinical experience including two weeks in the operating rooms.

130. Nursing of Children. I, II. 2 hr. PR: Junior standing. Theory and clinical experience related to the nursing care of the hospitalized infant and child and adaptations of children to illness. Emphasis is on basic principles of nursing care of children with health problems. Four weeks instruction and clinical experience.

135. Dynamics of Human Development. I, II. 2 hr. Study of the inter-relatedness of physiological, psychological and social factors in human development from infancy through adolescence. Includes guided observation of children in individual and group settings.

140. Maternity Nursing. I, II. 2 hr. PR: Junior standing. Concepts, principles and practices of maternity nursing basic to support of the mother during labor and delivery and immediate care of the newborn. Emphasis is on the family as a unit and on the reproductive process as it affects personal and family life. Four weeks instruction and clinical experience.

150. Psychiatric Nursing. I, II. 4 hr. PR: Junior standing. Theory and clinical experience dealing with dynamics of human behavior as these relate to pre-

CURRICULUM PLAN

First Year	Hr.	Second Year	Hr.	Third Year	Hr.	Fourth Year*	Hr.
English 1 & 2—Comp. & Rhet.	6	Psych. 1—(Intro.)	3	Phil. 104—Principles	3	Psych. 115—Psy. in Indust.	3
Hum. 1 & 2—Gen. Course	8	Anat. 101—(Principles)	3	Soc. 104—Soc. Prob. *or*	3	*or* 116—Soc. Psych.	(3)
Chem. 1 & 2—Inorg. Chem.	8	Physi. 101—(Principles)	3	Soc. 210—Marr. & Fam.	(3)	Phil. 106—Logic	3
Sociol 1—Intro. to Soc.	3	Microbiol 26—(Microbio.)	3	Soc. 243—Anthropology	3	*or* 107—(Ethics)	(3)
Biol. 1—Gen. Biol.	4	Pharm. 60—(Pharmacology)	3	Elective	6	Elective	6
Phys. Ed.—General Program	2	Home Econ. 1—(Prin. Nutri.)	3				
		Pol. Sci. 1—(Dem. Gov't.)	3				
Nsg. 1—Orientation	2	Nsg. 2—The Nurse in Western Culture	2				
Nsg. 10—Intro. to Nsg.	2	Nsg. 20—(Med-Surg.)	2	Nsg. 120—(Med-Surg.)	4	Nsg. 220—(Med-Surg.)	4
		Nsg. 30—(Ped.)	2	Nsg. 130—(Ped.)	2	Nsg. 230—(Ped.)	2
		Nsg. 135 (Gr. & Dev.)	2				
		Nsg. 40—(Mat'y)	2	Nsg. 140—(Maty.)	2	Nsg. 240—(Mat'y.)	2
		Nsg. 50—(Psych.)	2	Nsg. 150—(Psych.)	2	Nsg. 250—(Psych.)	2
		Nsg. 60—(O.P.D.)	2	Nsg. 160—Public Health	2	Nsg. 260—(Public Health)	2
				Nsg. 161—Geriatric Nsg.	2		
				Nsg. 170—Intro. to Res.	2	Nsg. 270—Elective	2
						Nsg. 271—Nsg. Seminar	2

*Tentative; all 200 level Nursing courses to be developed.

vention, diagnosis, and treatment of mental illness. Emphasis is on development of increased skill and understanding in observation of behavior, on communications, and interpersonal relationships. Eight weeks instruction and clinical experience in nursing care of mentally ill patients.

160. Community Nursing. I, II. 2 hr. PR: Junior standing. Consideration of major community health problems with special reference to their prevention and control. Emphasis is on the nursing care of families with health problems and on means by which communities organize to effect better health. Eight weeks instruction, experience and observation in community health facilities.

161. Geriatric Nursing. I, II. 2 hr. PR: Junior standing. Theory and clinical experience in nursing the aged patient, with special reference to the psychological, physiological, and social adaptations necessitated by illness in this age group. Eight weeks instruction, experience and observation in the nursing of the aged. Concurrent with Nsg. 160.

170. Introduction to Research in Nursing. II. 2 hr. PR: Phil. 3 hr., Junior standing or consent. Introduction to research in nursing with special reference to its utilization in the improvement of patient care. Considers the theory of nursing and the use of scientific criteria in evaluation of current nursing research.

Note: All clinical nursing courses are offered on a rotating basis throughout the academic year.

TRANSFER STUDENTS

Students from other colleges and universities who wish to enter the School of Nursing may make application to do so by submitting transcripts of all previous college work showing an average of C+ or better. Transfer students are accepted only in the fall semester. Because of the design of the curriculum, students must complete *a minimum of three years* in this School, regardless of previous college credit.

Students are accepted for transfer only if vacancies exist in the sophomore class. Students who are accepted may be required to attend summer school prior to their admission in the fall to complete freshman nursing courses. Application for transfer must be made by May 1.

REGISTERED NURSE STUDENTS

The School of Nursing offers qualified registered nurses who have been graduated from diploma schools of nursing opportunity to complete requirements for the Bachelor of Science degree. Criteria for admission differ somewhat from those of basic students because of the different backgrounds.

The registered nurse is admitted to the School of Nursing as a special student until she completes approximately 60 semester hours of general education course requirements, maintaining a minimum grade-point average of 2.0 in University work. At this point she is eligible for acceptance as a degree candidate and must file a plan for completion of the degree. She is granted advanced standing in nursing courses on the basis of evaluation by School of Nursing faculty.

In accordance with University regulations, registered nurse students are held to the same requirements affecting degrees as are other University students. These regulations provide that candidates are eligible for graduation upon completion of requirements in effect at the time of their first registration in the School, provided they apply for graduation within seven years from that date. Students who fail to complete requirements by the expiration date may then be held to any new requirements in effect in the School.

General education courses which meet requirements of the School of Nursing may be taken in another accredited college or university and may be counted toward the 60-hour degree candidacy requirement. All nursing course work must be taken at West Virginia University. University residence requirements may be met either by completion of a total of 90 hours in the University or by completing the last 30 hours of work in actual residence at the University.

Applications should be submitted *at least six weeks* prior to anticipated date of entry, and should include transcripts of high school, nursing school, and previous college work. Registered nurse students, whether special students or degree candidates, are expected to pursue their programs regularly each semester. Failure to enroll in required courses in any given semester will be considered as a withdrawal from the program, unless prior permission has been obtained from the adviser. Reentry into the program can be obtained only with the consent of the Admissions Committee.

Registered nurse students are required to provide public health uniforms for public health experience and must also have the use of an automobile during this experience. Nurses who wish to work part-time while attending school are offered employment in the University Hospital. Inquiries regarding employment should be addressed to the Director of Nursing Service.

The School of Pharmacy

GENERAL INFORMATION

The curriculum in Pharmacy at West Virginia University consists of two years of pre-pharmacy requirements followed by three years of professional study.

AIMS AND PURPOSES

The principal objective of the School of Pharmacy is to educate men and women who intend to undertake the practice of pharmacy.

The curriculum is designed to equip the student with the scientific and technical knowledge required for pharmaceutical practice and to inculcate in the student a concept of the pharmacist's professional responsibilities as a guardian of the public health.

OPPORTUNITIES IN PHARMACY

A majority of pharmacy graduates enter practice in pharmacies open to the general public. However, a number of positions are available in institutional pharmacies and in various governmental agencies. Pharmacists are eligible for commissions in the Armed Forces and the U. S. Public Health Service.

Graduates may prepare themselves for careers in teaching and research by entering graduate schools for specialization in pharmacy, pharmacognosy, pharmaceutical chemistry, pharmacy administration, and pharmacology. The pharmaceutical industry provides opportunities in a variety of capacities in promotion, distribution, production, and research.

WOMEN IN PHARMACY

Experience has proved that women possess a particular fitness for the study and pursuit of pharmacy. In certain fields, such as hospital pharmacy, women appear to be given preference. The number of women engaged in the profession is constantly increasing, and women high-school graduates having an aptitude for scientific subjects would do well to seriously consider pharmacy as their profession.

ACCREDITATION

The School of Pharmacy of West Virginia University is accredited by the American Council of Pharmaceutical Education. The Council is composed of members from the American Pharmaceutical Association, the National Association of Boards of Pharmacy, the American Association of Colleges of Pharmacy, and the American Council on Education.

LEGAL REQUIREMENTS FOR PRACTICE IN WEST VIRGINIA

The West Virginia law provides that a person "in order to be registered as a pharmacist . . . shall be a citizen of the United States, not less than 21 years of age," and "shall present to the board of pharmacy satisfactory evidence that he is a graduate of a recognized school of pharmacy as defined by the board of pharmacy, and in addition thereto he shall have at least one year of practical experience in a drug store under the instruction and supervision of a registered pharmacist, and shall pass satisfactorily an examination by or under the direction of the board of pharmacy.

"Every applicant for registration as a pharmacist shall present to the board of pharmacy satisfactory evidence that he is a person of good moral character and not addicted to drunkenness or the use of narcotic drugs."

West Virginia law provides that the year of internship be registered with the West Virginia State Board of Pharmacy within ninety days from the beginning of such work for it to be credited toward the required year of experience. Persons must be enrolled in or a graduate of a recognized school of pharmacy to gain experience acceptable for this requirement.

RECIPROCITY

Graduates of the School of Pharmacy are eligible for examination to practice pharmacy in any state. Graduates who successfully pass the West Virginia State Board of Pharmacy examination are privileged to reciprocate with forty-six other states and with the District of Columbia and Puerto Rico, without further examination, provided they meet the requirements of these states.

CLASS ATTENDANCE

Students are expected to be present for all of their classes and laboratories.

COURSE LOAD

Full-time students in the School of Pharmacy may not register for less than 14 nor more than 20 hours during any semester without approval of the Committee on Student Status and Advancement.

OFF-CAMPUS EDUCATIONAL ACTIVITIES

Each student is required as a regular part of the curriculum to participate in several off-campus activities. Annually arrangements are made for visits to the laboratories of a pharmaceutical manufacturing company. These visits provide the student with some knowledge of the research activities required for the development of new drugs and dosage forms, and of the processes used in the production and marketing of quality-controlled pharmaceuticals.

Other off-campus activities include visits to service wholesale drug companies. Here the senior students learn of the functions and services performed by this vital link in drug distribution.

DEGREE REQUIREMENTS, CURRICULUM, COURSES

REQUIREMENTS FOR THE DEGREE

The degree of Bachelor of Science in Pharmacy (B.S.Pharm.) is conferred upon any student who complies with the general regulations of the University concerning degrees, satisfies all entrance and School requirements, and completes the curriculum of the School of Pharmacy.

To be eligible for graduation, a student must have an average of "C" or an average of two grade points for all work presented for graduation.

Each candidate for graduation from the School of Pharmacy shall be required to make at least one visit to the manufacturing and research facilities of a major pharmaceutical firm.

COURSE CHANGES

A student who desires to obtain credit for a course in place of any course prescribed in his curriculum must obtain permission of such change from the Committee on Student Status and Advancement.

PROFESSIONAL CURRICULUM

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Anatomy 101	4	Physiology 141	4
Biochemistry 139	5	Microbiology 220	5
Pharmacy 101	3	Pharmacy 104	3
Pharmacy 102	3	Pharmacy 105	2
		Pharmacy 271	3
	15		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pharmacology 261	5	Pharmacy 109	3
Pharmacy 106	3	Pharmacy 123	3
Pharmacy 107	2	Pharmacy 142	3
Pharmacy 122	3	Pharmacy 143	2
Pharmacy 141	3	Pharmacy 272	3
		Pharmacy 273	3
	16		17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pharmacy 121	3	Pharmacy 103	2
Pharmacy 208	7	Pharmacy 108	2
Pharmacy 221	3	Pharmacy 206	2
Pharmacy 274	3	Pharmacy 209	7
		Pharmacy 222	3
	16		16

COURSES OF INSTRUCTION

PHARMACY PROGRAM

Professors Bachmann, Geiler, and Hayman; Associate Professor O'Connell; Assistant Professors Blissitt, Core, and Wojcik; Instructors George and Thacker.

Pharmacy

101. Principles of Pharmacy. I. 3 hr. A systematic study of the fundamental pharmaceutical processes, physical concepts, and terminology. Lectures and recitations. (45 hr.).

102. Pharmaceutical Calculations. I. 3 hr. The mathematical problems and calculations encountered in and peculiar to pharmaceutical practice. (45 hr.).

103. History of Pharmacy. II. 2 hr. A course designed to give the student a deeper appreciation of the background of pharmacy and its development from the ancient times to the present. Lectures and recitations. (30 hr.).

104. General Pharmacy 1, Lectures. II. 3 hr. PR: Pharm. 101. A course dealing with the theories, processes of manufacture, and nomenclature of simple galenical preparations used in pharmacy, both official and nonofficial. Lectures and recitations. (45 hr.).

105. General Pharmacy 1, Laboratory. II. 2 hr. A laboratory course to accompany Pharm. 104, where representative examples of various preparations are prepared. Laboratory. (90 hr.).

106. General Pharmacy 2. I. 3 hr. PR: Pharm. 104 and 105. A detailed study of the more complex types of official and nonofficial preparations. Lectures and recitations. (45 hr.).

107. Introductory Pharmacy Dispensing. I. 2 hr. PR: Pharm. 104 and 105. A study of the compounding and dispensing of the basic forms of medication. Laboratory. (90 hr.).

108. Public Health and Hygiene. II. 2 hr. A study of the measures required for the maintenance of health and for the prevention and control of disease, and the application of the pharmacist's knowledge, skill, and facilities to the promotion of the health and welfare of the public in cooperation with public and private health agencies. Lectures and recitations. (30 hr.).

109. Intermediate Pharmacy Dispensing. II. 3 hr. PR: Pharm. 106 and 107. The problems presented in compounding are discussed and the more difficult types of pharmaceutical preparations are made. Lectures and laboratory. (105 hr.).

116. Pharmaceutical Investigation. I or II. 1-3 hr. Original investigation in pharmacy, pharmaceutical chemistry, or pharmacognosy.

117. Dispensing Pharmacy. I or II. 1-3 hr. PR: Pharm. 109. A practical course in the dispensing of prescriptions, open to a few students upon permission. The students assist in compounding of prescriptions in the Health Service Pharmacy under the immediate supervision of a registered pharmacist. (45 hr.).

201. Dispensing Pharmacy. I. 3 hr. PR: Pharm. 109. The theories and laboratory practices of previous compounding and dispensing courses are correlated with emphasis on the resolution of incompatibilities. Lectures and laboratory. (105 hr.).

203. Hospital Pharmacy. I, II. 2 hr. PR: Pharm. 109. A course arranged to give to the senior student practical hospital experience, under proper supervision, in the filling of prescriptions and the preparation of in-patient hospital medicinal needs.

204. Dispensing Pharmacy Lectures. II. 2 hr. PR: Pharm. 201. A comprehensive lecture course completing the coverage of theoretical aspects begun in Pharm. 201. (30 hr.).

205. Dispensing Pharmacy Laboratory. II. 2 hr. PR: Pharm. 201. A course designed to familiarize students with the compounding and dispensing of currently prescribed medication. (90 hr.).

206. Medical Emergencies. II. 2 hr. A course embracing accident prevention and medical emergency procedures as recommended for practicing pharmacists.

207. Seminar in Pharmaceutical Sciences. I, II. 1 hr. per sem. PR: Consent. Presentation and discussion of special topics in pharmaceutical sciences.

208. Pharmaceutical Practice. I. 7 hr. PR: Pharm. 109. A comprehensive course designed to bring all phases of pharmaceutical science to bear on pharmaceutical practice. Lectures, seminars, laboratory and in-service training.

209. Pharmaceutical Practice. II. 7 hr. PR: Pharm. 208. Continuation of Pharm. 208.

Pharmacy Administration

121. Pharmaceutical Law. I. 3 hr. A course designed to give the student a broad knowledge of the legal problems which confront the pharmacist. Special attention is given to the federal and state laws relating to the practice of pharmacy, narcotics, poisons, the pure food, drug and cosmetic acts, and the legal relationship of the pharmacist to the public. Lectures. (45 hr.).

122. Pharmacy Accounting. I. 3 hr. A study of the principles of accounting adapted to the needs of the pharmacist. Laboratory. (135 hr.).

123. Marketing of Drug Products. II. 3 hr. PR: Pharm. 122. A study of the marketing institutions and their functions involved in the distribution of drug products from the manufacturer to the retailer. Lectures and discussion. (45 hr.).

221. Pharmacy Management. I. 3 hr. A study of the principles and problems encountered in the acquisition, operation and control of a retail pharmacy. The course includes subject matter relating to store location, organization and management, leases, financing, departmentalization and arrangement, selection and supervision of personnel, expense and credit control. Lectures and discussion. (45 hr.).

222. Pharmacy Management. II. 3 hr. A study of the principles and methods used in managing the retail pharmacy. Subject matter includes buying and stock control, receiving and marking stock, pricing, sales promotion, and insurable risks. Lectures and discussion. (45 hr.).

Pharmacognosy

141. Pharmacognosy. I. 3 hr. PR: Microbiol. 220. A study of drugs of biological origin, both plant and animal; their specific origins, methods of preparation, active constituents, standards and medicinal use. Lectures and recitations. (45 hr.).

142. Pharmacognosy. II. 3 hr. PR: Pharm. 141. A continuation of Pharmacy 141. Lectures and recitations. (45 hr.).

143. Pharmacognosy Laboratory. II. 2 hr. PR: Pharm. 141. A study of drugs of biological origin; their identification by macroscopic and microscopic methods; biosynthesis of active constituents; isolation of active constituents; and identification and testing of the isolated constituents. Laboratory. (90 hr.).

Pharmaceutical Chemistry

271. Inorganic Pharmaceutical Chemistry. II. 3 hr. PR: Pharm. 101. A study of the inorganic chemicals associated with the practice of pharmacy. (45 hr.).

272. Organic Pharmaceutical Chemistry. II. 3 hr. PR: Biochem. 139. A study of the modern synthetic drugs and natural products, with regard to nomenclature, methods of synthesis and relation to other drugs having similar therapeutic, physical and chemical properties. (45 hr.).

273. Organic Pharmaceutical Chemistry. II. 3 hr. PR: Pharm. 272. A continuation of Pharm. 272. (45 hr.).

274. Assay and Pharmaceutical Testing. I. 3 hr. PR: Pharm. 273. Application of basic scientific principles to the standardization and analysis of drugs and pharmaceutical products, with particular attention to newer analytical techniques. Lectures and laboratory. (105 hr.).

The Division of Military Science and Air Science

BASIC COURSE—FIRST YEAR, 2 hr. (Army)

Military Science 1. Leadership Laboratory; American Military Heritage; Individual Weapons; Organization of the Army; 4 hr. per week during the first half of the semester; 2 hr. per week during the second half of the semester.

Military Science 2. Leadership Laboratory; U. S. Army and National Security; Counterinsurgency Training; Map Reading. 2 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

BASIC COURSE—FIRST YEAR, 2 hr. (Air Force)

Air Science 1. Foundations of Aerospace Power. An introductory examination of the factors of aerospace power, major ideological conflicts, requirements for military forces in being, responsibilities of citizenship, and development and traditions of the military profession; Leadership Laboratory; 4 hr. per week during the first half of the semester; 2 hr. per week during the second half of the semester.

Air Science 2. Foundations of Aerospace Power. An introductory examination of the factors of role and attributes of the professional officer in American democracy, organization of the armed forces as factors in the preservation of national security, and the United States Air Force as a major factor in the security of the free world; Leadership Laboratory; 2 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

BASIC COURSE—SECOND YEAR, 2 hr. (Army)

Military Science 3. Leadership Laboratory; American Military History; 4 hr. per week during the first half of the semester; 2 hr. per week during the second half of the semester.

Military Science 4. Leadership Laboratory; Map Reading; Small Unit Tactics; 2 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

BASIC COURSE—SECOND YEAR, 2 hr. (Air Force)

Air Science 3. Fundamentals of Aerospace Weapon Systems. An introductory survey of aerospace missiles and craft, and their propulsion and guidance systems; target intelligence and electronic warfare; nuclear, chemical and biological warhead agents; Leadership Laboratory; 4 hr. per week during the first half of the semester; 2 hr. per week during the second half of the semester.

Air Science 4. Fundamentals of Aerospace Weapon Systems. An introductory survey of defensive, strategic and tactical operations; problems, mechanics and military implications of space operations; and survey of contemporary military thought; Leadership Laboratory; 2 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

ADVANCED COURSE—THIRD YEAR, 3 hr. (Army)

MILITARY SCIENCE 105. Leadership Laboratory; Leadership; Military Teaching Methods; Branches of the Army; 5 hr. per week.

MILITARY SCIENCE 106. Leadership Laboratory; Small Unit Tactics; 5 hr. per week.

ADVANCED COURSE—THIRD YEAR, 3 hr. (Air Force)

AIR SCIENCE 105. PR: Basic Course or equiv.* Air Force Officer Development. Staff organization and functions, oral and written communication, and problem solving; Leadership Laboratory; 6 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

AIR SCIENCE 106. PR: Air Sci. 105 or consent. Air Force Officer Development. Basic psychological and sociological principles of leadership and their application to leadership practice and problems; and an introduction to military justice; Leadership Laboratory; 4 hr. per week during the first half of the semester; 6 hr. per week during the second half of the semester.

ADVANCED COURSE—FOURTH YEAR, 3 hr. (Army)

MILITARY SCIENCE 107. Leadership Laboratory; Army Administration; Command and Staff; Estimate of the Situation and Combat Orders; 5 hr. per week.

MILITARY SCIENCE 108. Leadership Laboratory; Logistics, Supply Management; Military Law; Role of the United States in World Affairs; Service Orientation; 5 hr. per week.

ADVANCED COURSE—FOURTH YEAR, 3 hr. (Air Force)

AIR SCIENCE 107. PR: Air Sci. 105 and 106 or consent. Intensive study of contemporary world politics (political science elective) and seminar of leadership and career opportunities in the Air Force; Leadership Laboratory; 6 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

AIR SCIENCE 108. PR: Air Sci. 105, 106 and 107 or consent. Modern power politics and American foreign relations (political science elective); seminar on the junior officer in the Air Force; Leadership Laboratory; 4 hr. per week during the first half of the semester; 6 hr. per week during the second half of the semester.

*Equivalent credit as granted by the Registrar of the University and the Professor of Air Science. Students who have had previous active service and desire to enter this course must have their requirements and status determined by the Professor of Air Science at the time of initial entry into the University. See page 72 of this **Catalog** for general regulations of the Division of Military Science and Air Science.

The School of Music

GENERAL INFORMATION AND DEGREE REQUIREMENTS

The School of Music of West Virginia University is a member of the National Association of Schools of Music. The requirements for entrance and for graduation as set forth in the *Announcements* of the School of Music are in accordance with the published regulations of that organization. The Music Education Program offered in the School of Music is fully accredited by the National Council for Accreditation of Teacher Education.

The School of Music is housed in a magnificent new air conditioned building. Constructed at a cost of over a million dollars, the building is completely modern in every respect, with special attention having been given to the acoustical problems.

Included among its facilities are 26 teaching studios, 30 practice rooms, band and orchestra rehearsal room, classrooms, student lounge, library, listening rooms, recital hall, dressing rooms, projection and recording room, and administrative offices.

The faculty of the School of Music consists of 35 artist-teachers and 10 graduate assistants. Each member was carefully selected because his musical background combined inspired teaching with outstanding experience as a professional performer.

The Bachelor of Music Degree

The Bachelor of Music Degree is conferred upon any student who complies with the general regulations of the University concerning degrees, satisfies all entrance and departmental requirements,[1] and completes one of the following curricula in music with an average of two grade-points per semester hour:[2]

A. Piano, pipe-organ, band or orchestral instruments

B. Theory and composition

C. Music Education

A freshman student who has less than a 1.00 (D) grade-point average at the close of his second semester is automatically suspended from the School of Music. A freshman who has less than a 1.5 grade-point average at the close of his second semester is automatically placed on probation for the following semester. The terms of probation will be determined by the Scholarship Committee.

For admission to the junior year in the School of Music, a student must have established a 2.0 (C) grade-point average.

Transfer students must establish transfer credit from other institutions during the first semester in which they are enrolled in the School of Music.

Before graduation, all candidates for the degree of Bachelor of Music majoring in Applied Music must have three credits in public performances. All candidates for the degree of Bachelor of Music majoring in Music Education and Theory and Composition must have two credits in public performances. These credits will be granted on the following basis: one credit for each solo performance; one-half credit for each ensemble performance or each accompaniment on piano or organ of major length and difficulty. One of the required credits must be achieved by solo performances.

All music majors are required to participate not less than two clock hours per week in a major performing group.

Students are responsible for correctly fulfilling all requirements.

[1]See Undegraduate Applied Music Requirements in School of Music **Announcements.**

[2]Not more than 10 hours in Orchestra, Bands, and Choruses will be counted toward requirements for graduation. Grade points in excess of 2 hours credit in choral groups will not be counted towards requirements for graduation of students in Music Education with an instrumental emphasis. Grade points in excess of 2 hours credit in Orchestra or Bands will not be counted towards requirements for graduation of students in Music Education with choral emphasis.

For curricula other than Music Education, not more than 8 hours of Orchestra, Bands, and Choruses will be counted toward requirements for graduation.

UNDERGRADUATE CURRICULA LEADING TO THE DEGREE BACHELOR OF MUSIC

Applied Curriculum

I. WITH A MAJOR IN PIANO

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Piano	4	4	Piano 7
M. 1, 2	4	4	First-year theory
M. 102 or M. 105	1	1	Musical organization
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		
Sophomore Year			
M. 150, Piano	4	4	Piano 8
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
M. 153	1	1	Accompanying
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		
Junior Year			
M. 150, Piano	4	4	Piano 9
M. 107, 280	3	2	Form; Opera Survey
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
M. 153	1	1	Accompanying
M. 218, 219	1	1	Methods and pedagogy
M. 109, 110	2	2	Intro. Counterpoint; Ctrpt.
Elective	2	2	Music
Elective	3	3	Academic
	Women 33 hr.		
	Men 33 hr.		
Senior Year			
M. 150, Piano	4	4	Piano 10
M. 155	1	1	Chamber music
M. 220, 221	1	1	Repertoire
M. 199		2	Recital
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
Elective	4	4	Music
Elective	3	3	Academic
	Women 30 hr.		
	Men 30 hr.		

Total 131 hr. (Women)

137 hr. (Men)

II. WITH A MAJOR IN ORGAN

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Organ	4	4	Organ 1-4
M. 150, Piano	2	2	Piano 5
M. 1, 2	4	4	First-year theory
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	

Women 38 hr.

Men 42 hr.

Sophomore Year			
M. 150 Organ	4	4	Organ 5-6
M. 150, Piano	2	2	Piano 6
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	

Women 36 hr.

Men 38 hr.

Junior Year			
M. 150, Organ	4	4	Organ 7-8
M. 183, 280	2	2	Conducting; Opera Survey
M. 232, 233	3	3	Church Music; Liturgies
M. 109, 110	2	2	Intro. Counterpoint; Ctrpt.
M. 218, 219	1	1	Methods and pedagogy
M. 102 or M. 105	1	1	Univ. Chorus; Univ Choir
Elective	2	2	Music
Foreign Language	3	3	German or Romance language

Women 36 hr.

Men 36 hr.

Senior Year			
M. 150, Organ	4	4	Organ 9-10
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
M. 220, 221	1	1	Repertoire
M. 199		2	Recital
M. 231	2		Prin. of vocal production
Electives	4	4	Music
Electives	3	3	Academic

Women 30 hr.

Men 30 hr.

Total 140 hr. (Women)

146 hr. (Men)

III. WITH A MAJOR IN FLUTE, OBOE, CLARINET, SAXOPHONE, BASSOON, HORN, TRUMPET, TROMBONE, EUPHONIUM, TUBA, DOUBLE BASS, OR PERCUSSION

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Music	4	4	Instrument 7
M. 1, 2	4	4	First-year theory
M. 150, Piano	2	2	Piano 2
M. 100 or M. 103	1	1	Band; Orchestra
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	

Women 38 hr.

Men 42 hr.

Sophomore Year			
M. 150, Applied Music	4	4	Instrument 8
M. 150, Piano	2	2	Piano 3
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 100 or M. 103	1	1	Band; Orchestra
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	

Women 36 hr.

Men 38 hr.

Junior Year			
M. 150, Applied Music	4	4	Instrument 9
M. 117; M. 118 or M. 119	2	2	Inst.; Orch. & Band Arr.
M. 218, 219	1	1	Methods and pedagogy
M. 155	1	1	Chamber music
M. 100 or M. 103	1	1	Band; Orchestra
M. 109, 110	2	2	Intro. Counterpoint; Ctrpt.
Elective	2	2	Music
Elective	3	3	Academic

Women 32 hr.

Men 32 hr.

Senior Year			
M. 150, Applied Music	4	4	Instrument 10
M. 281, 199	2	2	Survey Symp. M.; Recital
M. 220, 221	1	1	Repertoire
M. 155	1	1	Chamber music
M. 100 or M. 103	1	1	Band; Orchestra
Elective	2	2	Music
Elective	3	3	Academic

Women 28 hr.

Men 28 hr.

Total 134 hr. (Women)

140 hr. (Men)

IV. WITH A MAJOR IN VIOLIN, VIOLA, OR VIOLONCELLO

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Music	4	4	Instrument 7
M. 150, Piano	2	2	Piano 2
M. 1, 2	4	4	First-year theory
M. 195	1	1	Viola class (violinists only)
M. 103	1	1	Orchestra
English 1, 2	3	3	Composition and rhetoric
Humanities 1	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	

Women 40 hr.

Men 44 hr.

Sophomore Year			
M. 150, Applied Music	4	4	Instrument 8
M. 150, Piano	2	2	Piano 3
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 103	1	1	Orchestra
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ.	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	

Women 36 hr.

Men 38 hr.

Junior Year			
M. 150, Applied Music	4	4	Instrument 9
M. 117, 118	2	2	Instrumentation; Orchestration
M. 218, 219	1	1	Methods and pedagogy
M. 155	1	1	Chamber music
M. 103	1	1	Orchestra
M. 109, 110	2	2	Intro. Counterpoint; Ctrpt.
Elective	2	2	Music
Elective	3	3	Academic

Women 32 hr.

Men 32 hr.

Senior Year			
M. 150, Applied Music	4	4	Instrument 10
M. 281, 199	2	2	Survey Sym. M.; Recital
M. 220, 221	1	1	Repertoire
M. 155	1	1	Chamber music
M. 103	1	1	Orchestra
M. 90	1	1	String bass class ('cellists only)
Elective	2	2	Music
Elective	3	3	Academic

Women 30 hr.

Men 30 hr.

Total 138 hr. (Women)

144 hr. (Men)

V. WITH A MAJOR IN VOICE

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Voice	4	4	Voice 7
M. 150, Piano	2	2	Piano 2
M. 1, 2	4	4	First-year theory
M. 102 or 105	1	1	Choral Union; Univ. Choir
English 1, 2	3	3	Composition and rhetoric
Language	3	3	Italian, French, German[1]
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	

Women 36 hr.

Men 40 hr.

Sophomore Year			
M. 150, Voice	4	4	Voice 8
M. 150, Piano	2	2	Piano 3
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or M. 105	1	1	Choral Union or Univ. Choir
Language	3	3	Italian, French, German
Phys. Educ.	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	

Women 36 hr.

Men 38 hr.

Junior Year			
M. 150, Voice	4	4	Voice 9
M. 20	2	2	Intro. Opera theatre
M. 109, 110	2	2	Intro. Counterpoint; Ctrpt.
M. 102 or M. 105	1	1	Choral Union or Univ. Choir
Elective	2	2	Music
Language	3	3	Italian, French, German
English elective	3	3	English 18; 3, 4, 5, or 6

Women 34 hr.

Men 34 hr.

Senior Year			
M. 150, Voice	4	4	Voice 10
M. 210	2	2	Opera theatre
M. 218, 219	1	1	Methods and pedagogy
M. 199	–	2	Recital
M. 280	2	–	Survey Operatic music
M. 120	–	2	Choral arranging
M. 102 or M. 105	1	1	Choral Union or Univ. Choir
M. 220, 221	1	1	Repertoire
Elective	2	2	Music

Women 28 hr.

Men 28 hr.

Total 134 hr. (Women)

140 hr. (Men)

[1]One year each of Italian, French, German.

THEORY AND COMPOSITION CURRICULUM

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150	4	4	Applied music*
M. 1, 2	4	4	First-year theory
M. 100, 102, 103, 105, or 155	1	1	Musical organization**
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		
Sophomore Year			
M. 150	4	4	Applied music
M. 3, 4	4	4	Second-year theory
M. 113, 114	2	2	Intro. Comp.; Composition
M. 140, 141	3	3	History of music
M. 100, 102, 103, 105, or 155	1	1	Musical organization
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 36 hr.		
	Men 38 hr.		
Junior Year			
M. 150	4	4	Applied music
M. 107, 250	3	3	Form, Advanced Harmony
M. 109, 110	2	2	Intro. Counterpoint; Ctrpt.
M. 114	2	2	Composition
M. 117, 118	2	2	Instrumentation; Orchestration
M. 100, 102, 103, 105, or 155	1	1	Musical organization
French, German, or Italian 1, 2	3	3	First-year foreign language
	Women 34 hr.		
	Men 34 hr.		
Senior Year			
M. 150	4	4	Applied music
M. 183, 184	2	2	Conducting
M. 114, 198	2	2	Composition, project***
M. 280, 281	2	2	Operatic surv.; Symp surv.
M. 119 or M. 120	2		Band or choral arranging
M. 100, 102, 103, 105, and 155	1	1	Musical organization
French, German, or Italian	3	3	Second-year foreign language
	Women 30 hr.		
	Men 30 hr.		
	Total 134 hr. (Women)		
	140 hr. (Men)		

*Candidates for this degree must complete grade level 7 on their major instrument and grade level 4 in piano.

**At least 4 credit hours must be in a major performing group.

***Major project in theory or composition.

MUSIC EDUCATION CURRICULUM — Choral Emphasis

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Major	2	2	Voice or Keyboard 4[1]
M. 150, Applied Minor	1	1	Voice 1 or Piano 2A, 2B[1]
M. 84, 85, Applied Class	1	1	String class
M. 1, 2	4	4	First-year theory
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	General humanities[2]
Phys. Educ	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		
Sophomore Year			
M. 150, Applied Major	2	2	Voice or Keyboard 5
M. 150, Applied Minor	2	2	Voice 2 or Piano 3
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
Soc. Sci. 1, 2	4	4	Introductory general course
Educ. 105, 106	3	3	Human growth and development
Educ. 100	1	_	Orientation and selection
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 41 hr.		
	Men 43 hr.		
Junior Year			
M. 150, Applied Major	2	2	Voice or Keyboard 6
M. 80, 81 or 82, 83, Applied Class	1	1	Woodwind or Brass class
M. 181, 182	2	3	Music Ed. elem; Mus. Ed. sec.
M. 183, 184	2	2	Conducting
M. 120	_	2	Choral arranging
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
Biol. or Phys. Sci. 1, 2	4	4	Gen. Biol; intro. gen. course
Health Ed. 102	2	_	School health program
Art 30	_	2	Appreciation of the fine arts
	Women 32 hr.		
	Men 32 hr.		
Senior Year			
M. 150, Applied Major	2	2	Voice or Keyboard 7
M. 197, Applied Class	1	_	Percussion class
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
English 18; 3, 4, 5, or 6	6	_	Adv. written and spoken; Lit.
Educ. 115	2	_	Student teaching—elementary
Educ. 130	2	_	Materials and methods—elem.
Educ. 125	_	4	Student teaching—secondary
Educ. 120	_	4	Principles of teaching
Educ. 169	_	2	Materials and methods—sec.
Elective	_	1	Elective
	Women 28 hr.		
	Men 28 hr.		

Total: 135 hr. Women; 141 hr. Men

[1]Students must demonstrate piano level 4 to use organ as an applied minor.
[2]With the approval of the adviser, students may take History 1, 2 instead of Humanities 1, 2.

MUSIC EDUCATION CURRICULUM – Instrumental Emphasis[1]

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Major	2	2	Major instrument 4
M. 150, Applied Piano or Instr.	1	1	Piano 1A, 1B or Instr. 3
M. 84, 85, Applied Class	1	1	String class
M. 1, 2	4	4	First-year theory
M. 100 or 103	1	1	Band, Orchestra
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	General humanities[2]
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		

Sophomore Year	*First Sem.*	*Second Sem.*	
M. 150, Applied Major	2	2	Major instrument 5
M. 150, Applied Piano or Instr.	1	1	Piano 2A, 2B, or Instr. 4
M. 82, 83, Applied Class	1	1	Brass class
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 100, 102, 103	1	1	Band, Orchestra; (Chorus)[3]
Soc. Sci. 1, 2	4	4	Introductory general course
Educ. 105, 106	3	3	Human growth and development
Educ. 100	1	_	Orientation and selection
Mil. or Air Sci. 3, 4 (Men)	2	2	
Phys. Educ. (Women)	1	1	
	Women 41 hr.		
	Men 43 hr.		

Junior Year			
M. 150, Applied Major	2	2	Major instrument 6
M. 150, Applied Voice	1	1	Voice 1
M. 80, 81, Applied Class	1	1	Woodwind class
M. 117, 118 or M. 119	2	2	Instn.; Orch. or Band Arr.
M. 181, 182	3	3	Mus. Ed. elem.; Mus. Ed. sec.
M. 183, 184	2	2	Conducting
M. 100, 102, 103	1	1	Band, Orchestra; (Chorus)[3]
Biol. or Phys. Sci. 1, 2	4	4	Gen. Biol.; Intro. gen. course
Art 30	_	2	Appreciation of the fine arts
Health Educ. 101	2	_	School health program
	Women 36 hr.		
	Men 36 hr.		

Senior Year			
M. 150, Applied Major	2	2	Major instrument 7
M. 197, Applied Class	1	_	Percussion class
M. 100, 102, 103	1	1	Band, Orchestra (Chorus)
English 18; 3, 4, 5, 6	6	_	Adv. written and spoken; Lit.
Educ. 115	2	_	Student teaching—elementary
Educ. 130	2	_	Materials and methods—elem.
Educ. 125	_	4	Student teaching—secondary
Educ. 120	_	4	Principles of teaching
Educ. 169	_	2	Materials and methods—sec.
Elective	_	1	Elective
	Women 28 hr.		
	Men 28 hr.		

Total: 139 hr. Women; 145 hr. Men

[1]Piano majors in Instrumental will complete level IV on one other instrument.

[2]With the approval of the adviser, students may take History 1, 2 instead of Humanities 1, 2.

[3]Music Education majors in Instrumental are required to be in a major choral group for at least one year.

The student is responsible for correctly fulfilling all requirements. Each student should review his course requirements both before and after every registration period so that errors or omissions will be detected immediately.

Certification

Students successfully completing the above course of study will qualify for the Professional Certificate, Grades 1-12. This certificate qualifies one to teach music on both elementary and secondary levels.

Students wishing to qualify for a second teaching field at secondary level will satisfy the requirements for the Professional Certificate, Grades 7-12, by completing the requirements of the second teaching field and the following courses in Education: 100, 105, 106, 120, 124, 169, and a 2-hour elective in Secondary Education. (See W.V.U. *Teacher Training Bulletin* for requirements in teaching fields.)

Students desiring to qualify for both types of Professional Certificates will usually need to take additional courses during the Summer Session or in extra semesters.

THREE-YEAR ACCELERATED MUSIC EDUCATION PROGRAM

The following program permits students to complete the Music Education Curriculum in three consecutive full years. Students desiring to enroll in the Three-Year Accelerated Program must be recommended by the Adviser and approved by the Chairman of Music Education and the Dean of the School prior to the student's registration for the first summer term following the completion of his second semester.

Freshman students entering the University in June who plan to enroll in the Three-Year Accelerated Program will have the advantage of carrying less hours during some semesters, and under certain circumstances, be able to complete the curriculum before the end of the fourth summer.

Inability to follow the prescribed program will automatically terminate the possibility of the student completing the curriculum in the proposed three years.

THREE-YEAR ACCELERATED MUSIC EDUCATION CURRICULUM — Choral Emphasis

First Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Major	2	2	Voice or Keyboard 4
M. 150, Applied Minor	1	1	Voice 1 or Piano 1
M. 84, 85, Applied Class	1	1	String Class
M. 1, 2	4	4	First-year theory
M. 102 or 105	1	1	Choral Union; Univ. Choir
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	General humanities[1]
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women	34 hr.	
	Men	38 hr.	
Summer Session			
M. 150, Applied Major	2	_	Voice or Keyboard 5
Soc. Sci. 1, 2	4	4	Introductory general course
Art 30	_	2	Appreciation of the fine arts
	Women	12 hr.	
	Men	12 hr.	

[1]With the approval of the adviser, students may take History 1, 2 instead of Humanities 1, 2.

Second Year			
M. 150, Applied Major	2	2	Voice or Keyboard 5, 6
M. 150, Applied Minor	2	2	Voice 2 or Piano 3
M. 80, 81, or 82, 83 Applied Class	1	1	Woodwind or Brass class
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or 105	1	1	Choral Union; Univ. Choir
Biol. or Phys. Sci. 1, 2	4	4	Gen. Biol.; intro. gen. course
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 40 hr.		
	Men 42 hr.		
Summer Session			
M. 181, 182	3	3	Mus. Ed.—elem; Mus. Ed.—sec.
Educ. 105, 106	3	3	Human growth and development
Educ. 100	1	_	Orientation and selection
	Women 13 hr.		
	Men 13 hr.		
Third Year			
M. 150, Applied Major	4	2	Voice or Keyboard 6, 7
M. 197, Applied Class	1	_	Percussion class
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
M. 120	_	2	Choral arranging
English 18; 3, 4, 5, 6	6	_	Adv. written and spoken; Lit.
Educ. 115	2	_	Student teaching—elementary
Educ. 130	2	_	Materials & methods—elementary
Educ. 125	_	4	Student teaching—secondary
Educ. 120	_	4	Principles of teaching
Educ. 169	_	2	Materials and methods—sec.
	Women 31 hr.		
	Men 31 hr.		
Summer Session			
M. 150, Applied Major	2	_	Voice or Keyboard 7
Health Ed. 102.	2	_	School health program
Elective	1	_	Elective
	Women 5 hr.		
	Men 5 hr.		

Total: 135 hr. Women; 141 hr. Men

THREE-YEAR ACCELERATED MUSIC EDUCATION CURRICULUM — Instrumental Emphasis

First Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Major	2	2	Major instrument 4
M. 150, Appl. Keyboard or Instr.	1	1	Piano 1A, 1B, Instrument 3
M. 84, 85, Applied Class	1	1	String class
M. 1, 2	4	4	First-year theory
M. 100 or 103, 102	1	1	Band or Orchestra (Chorus)[1]
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	General humanities[2]
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		

Summer Session			
M. 150, Applied Major	2	_	Major instrument 5
Soc. Sci. 1, 2	4	4	Introductory general course
Art 30	_	2	Appreciation of the fine arts
	Women 12 hr.		
	Men 12 hr.		
Second Year			
M. 150, Applied Major	2	2	Major instrument 5, 6
M. 150, Appl. Keyboard or Instr.	1	1	Piano 2A, 2B or Instrument 4
M. 82, 83, Applied Class	1	1	Brass class
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 100 or 103, 102	2	2	Band or Orchestra (Chorus)[1]
M. 183, 184	2	2	Conducting
Biol. or Phys. Sci. 1, 2	4	4	Gen. Biol.; intro. gen. course
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 40 hr.		
	Men 42 hr.		
Summer Session			
M. 150, Applied Voice	1	1	Voice 1
M. 181, 182	3	3	Mus. Ed.—elem.; Mus. Ed.—sec.
Educ. 105, 106	3	3	Human growth and development
Educ. 100	1	_	Orientation and selection
	Women 15 hr.		
	Men 15 hr.		
Third Year			
M. 150, Applied Major	2	2	Major instrument 6, 7
M. 80, 81, Applied Class	1	1	Woodwind class
M. 197, Applied Class	1	_	Percussion class
M. 100 or M. 103	1	1	Band or Orchestra
M. 117, 118 or M. 119	2	2	Instn; orch. or band arr.
English 3, 4, 5, 6	3	_	Literature
Educ. 115	2	_	Student teaching—elem.
Educ. 130	2	_	Materials and methods—elem.
Educ. 125	_	4	Student teaching—secondary
Educ. 120	_	4	Principles of teaching
Educ. 169	_	2	Materials and methods—sec.
	Women 30 hr.		
	Men 30 hr.		
Summer Session			
English 18	3	_	Adv. written and spoken English
Health Educ. 102	2	_	School health program
M. 150, Applied Major	_	2	Major instrument 7
Elective	_	1	Elective
	Women 8 hr.		
	Men 8 hr.		

Total 139 hr. Women

145 hr. Men

[1]Music Education majors in Instrumental are required to be in a major choral group for at least one year.

[2]With the approval of the adviser, students may take History 1, 2 instead of Humanities 1, 2.

OPTIONAL FIVE-YEAR PROGRAM

An optional five-year program has been arranged for students who desire to meet the requirements of majors in both Applied Music and Music Education. Admission to this program is by consent of the faculty. As outlined below, the curriculum leads to the Professional Certificate, Grades 1-12.

COMBINED APPLIED-MUSIC EDUCATION CURRICULUM

First Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Music	6	6	Major, minor or other
M. 1, 2	4	4	First-year theory
M. 100 to 105	1	1	Band, orchestra, choral
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	General humanities
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 38 hr.		
	Men 42 hr.		
Second Year			
M. 150, Applied Music	6	6	Major, minor or other
M. 84, 85, Applied Class	1	1	String class
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 100 to 105	1	1	Band, orchestra, choral
Soc. Sci., 1, 2	4	4	Introductory general course
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 40 hr.		
	Men 42 hr.		
Third Year			
M. 150, Applied Music	6	6	Major, Minor or other
M. 82, 83, Applied Class	1	1	Brass class
M. 218, 219	2	2	Methods and pedagogy
M. 117 to 120	2	2	Instn., Orch.-Band.-Choral Arr.
M. 183, 184	2	2	Conducting
M. 100 to 105	1	1	Band, orchestra, choral
Biol. or Phys. Sci. 1, 2	4	4	Gen. biol.; intro. gen. course
English 18; 3, 4, 5, 6	3	3	Adv. written and spoken; Lit.
	Women 42 hr.		
	Men 42 hr.		
Fourth Year			
M. 150, Applied Major	4	4	Applied major
M. 80, 81, Applied Class	1	1	Woodwind class
M. 109, 110	2	2	Intro. counterpoint; Ctrpt.
M. 181, 182	3	3	Mus. Ed.—elem.; Mus. Ed.—sec.
M. 100 to 105	1	1	Band, orchestra, choral
Educ. 105, 106	3	3	Human growth and development
Educ. 100	1	_	Orientation and Selection
Health Ed. 102	2	_	School health program
Art 30	_	2	Appreciation of the fine arts
	Women 33 hr.		
	Men 33 hr.		

Fifth Year

M. 150, Applied Major	4	4	Major, minor or other
M. 197 Applied Class	1	_	Percussion class
M. 220, 221	1	1	Repertoire
M. 100 to 105	1	1	Band, orchestra, choral
M. 199	_	2	Recital
Educ. 115	_	2	Student teaching—elementary
Educ. 130	_	2	Materials and methods—elem.
Educ. 125	4	_	Student teaching—secondary
Educ. 120	4	_	Principles of teaching
Educ. 169	2	_	Materials and methods—sec.
Elective	_	2	Elective

Women 31 hr.

Men 31 hr.

Total 184 hr. Women

190 hr. Men

The numerous possible combinations of Applied Music with Music Education cannot be listed separately in this bulletin. When the student becomes a candidate for this degree, his adviser designates the specific courses which must be taken in order to satisfy the requirements for both Applied Music and Music Education. The student can become a candidate for this degree only by consent of the faculty. By attending summer sessions, it may be possible to complete the combined curriculum in four years.

COURSES OF INSTRUCTION

0. Theory. I. 0 hr. A course designed to prepare students for Music 1. Staff

1. Theory. I. 4 hr. Thorough training in the melodic, harmonic and rhythmic elements of music. Triads, intervals, keys, scales, cadences, notation, rhythmic reading, sight singing, melodic and harmonic dictation, keyboard harmony. Staff

2. Theory. II. 4 hr. PR: Music 1. Continuation of the melodic and harmonic dictation. Seventh chords, modal scales, key relationships, modulation, transposition by clef, and the study of four-part writing, keyboard harmony. Staff harmony. Staff

3. Theory. I. 4 hr. PR: Music 1, 2. Study of the harmonic technique of the 18th and 19th centuries. Melodic and harmonic dictation, four-part writing, modulation, altered chords, chorale harmonization, keyboard harmony. Staff

4. Theory. II. 4 hr. PR: Music 1, 2, 3. Continuation of Music 3 drills. Dictation of chorales. Contrapuntal technique of the 18th century. Keyboard harmony. Staff

5. Remedial Theory. I, II. No Credit. A course for graduate students who are deficient in undergraduate theory requirements. Mr. Lorince

10. Music in Human Relations. I, II. 2 hr. A course designed to supply a foundational, cultural, music background to a clearer understanding of music as a daily living experience. Lectures, demonstrations, concerts, recordings. Not open to music majors. Staff

11. Music as an Art and Science. I, II. 2 hr. PR: Music 10 or its equiv. Music in the elementary school curriculum. Music methods and materials for teachers in the first three grades. Two recitation periods and one laboratory period per week. Not open to music majors. Miss Scott

12. Music Materials and Procedures. I, II. 2 hr. PR: Music 11 or its equiv. Continuation of Music 11. Methods and materials for teachers in upper grades. Criteria for utilization of notational elements. Two recitation periods and one laboratory period per week. Not open to music majors. Miss Scott

20. Introduction to Opera Theatre. I, II. 2 hr. Maximum credit 8 hr. PR: Consent. Practical work in all aspects of Lyric Theatre production. Development of lyric theatre stage technique through movement studies, performance in minor roles, and operatic scenes. Mr. Golz

77. Enjoyment of Music. I. 1 hr. A non-technical course dealing with the elements of music—rhythm, timbre, form, harmony, melody. Not open to music majors. Mr. Wood

78. Enjoyment of Music. II. 1 hr. Continuation of Music 77. Not open to music majors. Mr. Wood

107. Analysis of Musical Form. I. 3 hr. PR: Music 4. A detailed study of the structure of music. Mr. Engberg

109. Introductory Counterpoint. I. 2 hr. PR: Music 4. A course in 16th century polyphony. A brief survey of the history of style in 16th century choral music. Students compose in Palestrina Style. Mr. Lorince

110. Counterpoint. II. 2 hr. PR: Music 109. A study of 18th century counterpoint. Student compose inventions and fugues. Mr. Lorince

113. Introductory Composition. I. 2 hr. PR: Music 4 or consent. Creative writing. Staff

114. Composition. II. 2 hr. PR: Music 113 or consent. Continuation of Music 113. Course may be repeated for credit; maximum credit 10 hours. Staff

117. Instrumentation. I. 2 hr. PR: Music 2. Study of the characteristics of band and orchestral instruments and their use in scoring. Staff

118. Orchestration. II. 2 hr. PR: Music 117. Problems in scoring for orchestral ensembles. Staff

119. Band Arranging. II. 2 hr. PR: Music 117. Problems in scoring for concert and marching bands. Staff

120. Choral Arranging. II. 2 hr. PR: Music 1, 2. A study of the characteristics and problems in scoring for choral combinations. Staff

140. History of Music. I. 3 hr. Survey of music history from the pre-Christian era to the end of the baroque period. Mr. Kirby

141. History of Music. II. 3 hr. PR: Music 140. Continuation of Music 140, including the classic, romantic, and modern periods. Mr. Kirby

150. Applied Music. I, II. 1-4 hr. Open to qualified students in any field in Applied Music. Course number may be repeated as many times as necessary or desirable. Credit given at the following rates:

1. For music majors, two hours for each 30-minute weekly lesson.
2. For other students, a maximum of one 30-minute lesson per week at one hour of credit.
3. Students in lower grade levels of Applied Music may be grouped in small classes for initial instruction. 1-2 hr. credit. Staff

153. Accompanying. I, II. 1 hr. This course furnishes opportunity to acquire the art of accompanying vocal and instrumental solos. Course number may be repeated as many times as necessary or desirable. Mr. Miltenberger

155. Chamber Music. I, II. 0 or 1 hr. Open to pianists, string and wind instrument players. Course number may be repeated as many times as necessary or desirable. Staff

181. Music Education. I. 3 hr. Essentials of music education in the elementary grades. Miss Scott

182. Music Education. II. 3 hr. Essentials of music education in junior and senior high school. Mr. Brown

183. Conducting. I. 2 hr. A basic course in conducting techniques, both choral and instrumental. Mr. Brown

184. Conducting. II. 2 hr. PR: M. 183. Continuation of Music 183, including more advanced score reading and conducting techniques, both choral and instrumental. Mr. Brown

198. Major Project in Composition or Theory. 2 hr. PR: Music 4. Staff

199. Graduation Recital. I, II. 0 to 2 hr. Required for degree in Applied Music. Staff

200. Band, Orchestra, Choral, Opera Theatre, and Music Education Clinics. 2 hr. Special problems of organization and development of the various performing organizations. Lecture, laboratory and discussion groups. Staff

201. Music in the Elementary School. I, II. 2 hr. PR: Music 10, 11, 12, or consent. Development of skills, procedures, techniques, and materials used by the general classroom teacher of music in grades 1-8. Not open to music majors. Miss Scott

210. Opera Theatre. I, II. 2 hr. Maximum credit 8 hr. PR: Music 20 or consent. Continuation of Music 20. Performance of major roles and advanced production techniques. Qualified students will undertake production-direction projects under supervision. Mr. Golz

218. Methods and Pedagogy in Major Applied Fields. I. 1 hr. PR: Music 150. Staff

219. Methods and Pedagogy in Major Applied Fields. II. 1 hr. PR: Music 218. Staff

220. Repertoire. I. 1 hr. Staff

221. Repertoire. II. 1 hr. Staff

231. Principles of Vocal Production. II. 2 hr. Class lessons in voice stressing the fundamentals of voice production and pedagogy. Staff

232. Church Music. I. 3 hr. PR: Music 140-141 or equiv. A study of hymnology, anthems, cantatas, and oratorios appropriate to the liturgical year. Mr. English

233. Church Music. II. 3 hr. PR: Music 232, or consent. Continuation of Music 232, including historical study of Jewish, Roman Catholic and Protestant liturgies. Mr. English

246. Music in the Junior High School. I. 2 hr. PR: Music 181-182 or equiv. A consideration of the potentialities and special needs of the junior high school in music education; programs, procedures, and materials. Offered 1964-65. Mr. Brown

250. Advanced Harmony. II. 3 hr. PR: Music 4 or consent. A course in the harmonic practice of Romantic and Twentieth Century composers. Offered 1963-64 and 1965-66. Staff

280. Survey of Operatic Music. II. 3 hr. PR: Music 141. Offered 1964-65. Mr. Schafer

281. Survey of Symphonic Music. I. 3 hr. PR: Music 141. Offered 1964-65. Mr. Schafer

282. Studies in Contemporary Music. I. 3 hr. PR: Music 141. Offered 1963-64 and 1965-66. Mr. Schafer

283. Survey of Chamber Music. II. 3 hr. PR: Music 141. Offered 1963-64 and 1965-66. Mr. Schafer

284. Collegium Musicum, I, II. 0-2 hr. PR: Music 140 and consent. Preparation and performance of musical works of earlier periods. Mr. Kirby

BEGINNING APPLIED CLASSES

80. Woodwind Class. I. 1 hr. Staff

81. Woodwind Class. II. 1 hr. Staff

82. Brass Class. I. 1 hr. Staff

83. Brass Class. II. 1 hr. Staff

84. String Class. I. 1 hr. Staff

85. String Class. II. 1 hr. Staff

150. Piano Class, Section 24, 25. I, II. 1 hr. Mrs. Pestun

150. Voice Class, Section 26, 27. I, II. 1 hr. Mr. McGregor

194. Viola Class (for violinists only). I. 1 hr. Staff

195. Viola Class (for violinists only). II. 1 hr. Staff

197. Percussion Class. I, II. 1 hr. Staff

ORGANIZATIONS

100. Band. 0 to 1 hr. Mr. Borkowski

102. University Choral Union. 0 to 1 hr. Mr. Golz

103. University-Community Symphony Orchestra. 0 to 1 hr. Mr. Portnoy

105. University Choir. 0 to 1 hr. Mr. Golz

Applied Music

218. Methods and Pedagogy in Major Applied Fields. I. 1 hr. PR: Music 150. Staff

219. Methods and Pedagogy in Major Applied Fields. II. 1 hr. PR: Music 218. Staff

300. Applied Music. I, II. 1-4 hr. Open to qualified students in any field in Applied Music. Course number may be repeated as many times as necessary or desirable. A student must demonstrate ability of grade-level 4 on an instrument to receive credit in Music 300 on that instrument. Students other than music majors may take a maximum of one 30-minute lesson per week at one hour credit. Staff

309. Master Class in Applied Repertoire. I, II. 2 hr. PR: Consent. A master class designed to give coverage through performance of the literature of a specific Applied Music field. Course may be repeated for credit; maximum credit 8 hours. Staff

Conducting

310. Conducting. I. 3 hr. PR: Music 184 or equiv. A graduate course in instrument and choral conducting. Major works are prepared and conducted through the use of recordings and the large University music organizations. Staff

311. Conducting. II. 3 hr. PR: Music 310. Continuation of Music 310. Staff

Literature

220. Repertoire. I. 1 hr. Staff

221. Repertoire. II. 1 hr. Staff

280. Survey of Operatic Music. II. 3 hr. PR: Music 141. Offered 1964-65. Mr. Schafer

281. Survey of Symphonic Music. I. 3 hr. PR: Music 141. Offered 1964-65. Mr. Schafer

282. Studies in Contemporary Music. I. 3 hr. PR: Music 141. Offered 1963-64 and 1965-66. Mr. Schafer

283. Survey of Chamber Music. II. 3 hr. PR: Music 141. Offered 1963-64 and 1965-66. Mr. Schafer

284. Collegium Musicum. I, II. 0-2 hr. PR: Music 140 and consent. Preparation and performance of musical works of earlier periods. Mr. Kirby

323. Keyboard Literature. II. 3 hr. PR: Music 220. An intensive study of the literature for keyboard instruments and the history of the literature. Staff

324. Song Literature. I. 3 hr. PR: Music 220. An intensive study of the Art Song and the Lied and the history of their development. Staff

325. Choral Literature. II. 3 hr. PR: Music 220. An intensive study of the body of choral music and the history of its development. Staff

326. Music Literature Survey. I. 4 hr. PR: Music 140, 141. Intensive study of the history of music, music literature, musical documents, and the philosophies of music theory and aesthetics from Greek Antiquity up to 1750. Mr. Schafer

327. Music Literature Survey. II. 4 hr. PR: Music 140, 141. Continuation of Music 326, covering European music from 1750 to the present and music in America from Colonial times to the present. Mr. Schafer

328. Advanced Seminar in Musicology. I, II. 4 hr. PR: Music 331 and completion of doctoral qualifying examinations in French and German. Intensive individual investigation and preparation of research papers. Primarily intended for doctoral students in Musicology. Course may be repeated for credit; maximum credit 8 hours. Offered 1963-64 and 1965-66. Mr. Kirby

330. Introduction to Research. I. 3 hr. PR: Music 140-141, or equiv. A study of the field of musical research, with emphasis placed on the technic of research in music history. Mr. Kirby

331. Seminar in Musicology. II. 3 hr. PR: Music 330. Musical research and investigation. Special fields of study will be selected for each term and individual projects undertaken. Course may be repeated for credit. Mr. Kirby

332. Music in the Middle Ages. 3 hr. PR: Music 140-141 or equiv. and consent. A detailed study of the music and musical practice from the beginning of the Christian era to 1400. Offered S, 1964; I, 1965-66. Mr. Schafer

333. Music in the Renaissance. 3 hr. PR: Music 140-141 or equiv. and consent. Continuation of Music 332 through the 16th century. Offered S, 1963; I, 1964-65; II, 1965-66. Mr. Schafer

336. Music in the Baroque Period. 3 hr. PR: Music 140-141 or equiv. and consent. A detailed study of the music and musical practice of the period from 1600 to 1750. Offered I, 1963-64; II, 1964-65; S, 1966. Mr. Schafer

337. Music in the Classic and Romantic Periods. 3 hr. PR: Music 140-141 or equiv. and consent. Continuation of Music 336 covering the period from 1750 to 1900. Offered II, 1963-64; S, 1965; I, 1966-67. Mr. Schafer

338. History of Notation. I. 2 hr. PR: Music 140-141 or equiv. A detailed study in transcribing the musical manuscripts of the Middle Ages. Offered 1964-65. Mr. Kirby

339. History of Notation. II. 2 hr. PR: Music 140-141 or equiv. Continuation of Music 338, covering the Renaissance Period. Offered 1964-65. Mr. Kirby

Church Music

231. Principles of Vocal Production. II. 2 hr. Class lessons in voice stressing the fundamentals of voice production and pedagogy. Staff

232. Church Music. I. 3 hr. PR: Music 140-141 or equiv. A study of hymnology, anthems, cantatas, and oratorios appropriate to the liturgical year. Mr. English

233. Church Music. II. 3 hr. PR: Music 232 or consent. Continuation of Music 232, including historical study of Jewish, Catholic, and Protestant liturgies. Mr. English

334. Choir Seminar. I, II. 2 hr. PR: Music 184 or equiv. Development of a choir for a period of two semesters, culminating in a performance of a program of sacred music. Course may be repeated for credit; maximum credit 4 hours. Mr. English

Music Education

200. Band, Orchestra, Choral, Opera Theatre, and Music Education Clinics. 2 hr. Special problems of organization and development of the various performing organizations. Lecture, laboratory and discussion groups. Staff

201. Music in the Elementary School. I, II. 2 hr. PR: Music 10, 11, 12, or consent. Development of skills, procedures, techniques and materials used by the general classroom teacher of music in grades 1-8. Not open to music majors. Miss Scott

246. Music in the Junior High School. I. 2 hr. PR: Music 181-182 or equiv. A consideration of the potentialities and special needs of the junior high school in music education; programs, procedures and materials. Offered 1964-65. Mr. Brown

340. Choral Techniques. I. 2 hr. PR: Music 181-182 or equiv. A study of advanced techniques and procedures involved in the development of ensembles. Mr. Brown

342. Instrumental Techniques. II. 2 hr. PR: Music 181-182 or equiv. A study of advanced techniques and procedures involved in individual performance and instruction through lecture-demonstrations by the applied music faculty.

344. Music Education. II. 3 hr. PR: Music 181-182 or equiv. Survey and critical study of the total music education curriculum. Mr. Brown

345. The Supervision of Music. II. 2 hr. PR: Music 181-182 or equiv. Problems in the supervision of music in the elementary grades and in junior high school. Offered 1964-65. Mr. Brown

346. Introduction to Research in Music Education. I. 3 hr. PR: Music 181-182 or equiv. Discussion and independent research problems in the general field of Music Education. Research report required. Mr. Horacek

347. Seminar in Music Education. I. 4 hr. PR: Music 344 and consent. Extensive individual reading and reports on the history, philosophy, and aims of

music education in the university, college, conservatory, and public schools. Offered 1963-64 and 1965-66. Mr. Horacek

348. Seminar in Music Education. II. 4 hr. PR: Music 347. Continuation of Music 347. Emphasis on the curriculum, organization, and administration of the total music education program. Offered 1963-64 and 1965-66. Mr. Horacek

349. Psychology of Music. I. 3 hr. The science and physics of sound as applied to music and a study of the psychological difference in music and hearing. Mr. Horacek

350. Psychology of Music. II. 3 hr. PR: Music 349. A continuation of Music 349 with special attention to criticism and evaluation of existing sensory, motor, feeling, and achievement tests in music, as well as developing new tests on elements which make up the musical mind. Offered 1964-65. Mr. Horacek

351. Music in Society. I. 2 hr. PR: Music 141 or consent. The function throughout history of music in society; the relation between social factors and musical practice. Offered 1964-65. Mr. Horacek

352. Aesthetics of Music. II. 2 hr. PR: Music 141 or consent. An examination of the main classical and contemporary aesthetic theories and their applications to music. Mr. Horacek

Opera

210. Opera Theatre. I, II. 2 hr. Maximum credit 8 hr. PR: Music 20 or consent. Continuation of Music 20. Performance of major roles and advanced production techniques. Qualified students will undertake production-direction projects under supervision. Mr. Golz

Theory and Composition

250. Advanced Harmony. II. 3 hr. PR: Music 4 or consent. A course in the harmonic practice of Romantic and 20th century composers. Offered 1963-64 and 1965-66. Staff

360. Composition. I, II. 3 hr. PR: Consent. A course primarily for candidates for the graduate degrees in Theory or Composition. Course may be repeated for credit; maximum credit 9 hours. Staff

365. Counterpoint. I. 2 hr. PR: Music 4 and consent. A graduate course in 16th century counterpoint. Mr. Lefkoff

366. Counterpoint. II. 2 hr. PR: Music 365. Continuation of Music 365. Offered 1964-65. Mr. Lefkoff

367. Style Survey. I. 3 hr. PR: Music 140, 141 or equiv. An analytical study of musical styles from Gregorian chant through the 16th century. Mr. Lefkoff

368. Style Survey. II. 3 hr. PR: Music 367. An analytical study of musical styles from the 17th century to the mid-19th century. Staff

369. Research. I, II. 2 hr. PR: Music 232, 330, 346, or 365, and consent. Independent research projects in Theory, Music History, Music Education, or Church Music. Staff

370. Orchestration. I, II. 3 hr. PR: Music 118 or equiv. Major projects of orchestration. Course may be repeated for credit; maximum credit 6 hours. Staff

372. Band Arranging. II. 3 hr. PR: Music 119 or equiv. Major projects in arranging for the concert band. Staff

375. Pedagogy of Theory. I. 2 hr. PR: Music 4 and consent. Consideration of the various approaches to the teaching of theory. Mr. Lefkoff

376. Pedagogy of Theory. II. 2 hr. PR: Music 375. Continuation of Music 375. Mr. Lorince

377. Composition Seminar. I, II. 4 hr. PR: Music 360 and consent. Work in larger compositional problems and examination of technical features in works of recognized composers. Primarily intended for doctoral candidates in composition. Offered 1964-65. Course may be repeated for credit; maximum credit 8 hours. Staff

379. 18th Century Counterpoint. II. 2 hr. PR: Music 4 and consent. A graduate course in 18th century counterpoint. Mr. Lorince

380. 16th Century Counterpoint. I. 2 hr. PR: Music 366. A study of the secular style of the 16th century madrigal and chanson. Offered 1964-65. Mr. Lefkoff

381. Style Survey. I. 3 hr. PR: Music 368. An analytical study of musical styles of the late 19th century and early 20th century. Offered 1963-64 and 1965-66. Staff

382. Style Survey. II. 3 hr. PR: Music 381. An analytical study of 20th century music with emphasis on serial techniques and contemporary trends. Offered 1963-64 and 1965-66. Mr. Lefkoff

383. Theory Seminar. I, II. 4 hr. Music 382 or consent. Intensive individual investigation and preparation of research papers. Primarily intended for doctoral candidates in theory. Offered 1964-65. Course may be repeated for credit; maximum credit 8 hours. Mr. Lefkoff

Thesis or Recital

395. Dissertational Guidance. I, II. 1-8 hr. Credit not to be applied toward the 70-hour minimum for the Ph.D. or Ed.D. Staff

396. Two Lecture Recitals. 1-4 hr. For History of Music majors only. Staff

397. Recital. 2 hr. For Music Education majors only. Staff

398. Recital. 1-4 hr. PR: Music 199 or equiv. Staff

399. Thesis. 1-4 hr. Staff

GRADUATE SCHOOL

See the *Announcements* of the School of Music and the *Announcements* of the Graduate School for information concerning graduate programs in the School of Music.

The School of Physical and Health Education, Recreation, and Safety

The Division of Physical Education was established on the campus in 1928 and became the School of Physical Education and Athletics in 1937. The name was changed to The School of Physical and Health Education, Recreation, and Safety in 1960.

The purposes of the School are:

1. To conduct a general program of physical education for University students.
2. To provide professional preparation for careers in physical education, athletic coaching, recreation, health education, safety education, and pre-physical therapy.
3. To provide an intramural activities program for students and faculty.

Organization

For purposes of administration and instruction the School of Physical and Health Education, Recreation, and Safety is organized into the following departments:

1. Physical Education for Men
2. Physical Education for Women
3. Recreation
4. Health Education
5. Safety Education
6. Intramural Activities

Facilities

The Field House, located on the main campus near the Monongahela River, provides facilities for classes, intramural sports, and intercollegiate athletics (capacity 6,800) and contains the administrative offices of the School of Physical and Health Education, Recreation, and Safety.

Elizabeth Moore Hall, situated on the upper campus, provides social, recreation, and physical education facilities primarily for women students. It also houses the offices of the department of general program for women.

Mountainlair, the student activities center, is located on University Avenue near the Stadium Bridge.

Mountaineer Field is located within the stadium on the north border of the lower campus. It has a seating capacity of 34,800. It provides facilities for intercollegiate football and track and field events.

The administrative offices of the Department of Intercollegiate Athletics are located in the University end of the stadium.

Outdoor activities for the physical education, intramural sports, and intercollegiate athletics programs are located at the stadium, the tennis courts, and on the Evansdale Campus off U. S. Route 19, one and one-half miles north of the Field House.

Intramurals

A broad intramural sports program for men and women is provided by the School of Physical and Health Education, Recreation, and Safety. It is the aim of

the Intramural Department to encourage all students of the University to participate in organized athletic sports and wholesome active recreation. Competition is promoted between student groups and individuals. Such natural groupings as classes, fraternities, sororities, dormitories, and other nonfraternity units form the foundation for activities in competitive sports.

THE GENERAL PROGRAM FOR MEN AND WOMEN*

The general program provides an opportunity for students to develop general physical efficiency, skills in sports, dance, and wholesome health and recreation attitudes. Experiences gained in the program provide a basis for participation in intramural and varsity athletics, as well as on- and off-campus recreation.

The courses are specifically designed to: (a) meet the needs of students for an organized program of instruction, (b) develop physical fitness and skill in physical activity, (c) experience satisfaction and pleasure in participation, (d) aid in promoting better health by establishing habits of regular participation in physical activity and (e) develop favorable attitudes and appreciation of wholesome recreation and spectator sports as part of present-day living.

Students satisfying the course demands meet the University requirements in Physical Education as a prerequisite for graduation. Those students who are unable to participate in the regular program because of physical handicaps are assigned to the adapted program.

GENERAL PROGRAM COURSES FOR MEN

1. General Program for Men. I. 1 hr. Required of all freshmen in the University (except majors in Physical Education). Students who are found to be physically unable to engage in regular activity will be assigned to an adapted program of physical education recommended by University physicians and under the direction of the Staff of the Department. All other students will be assigned to the regular program of physical education. These students will be grouped for instruction and organized competition in the following activities: conditioning exercises, tumbling and apparatus, wrestling, golf, swimming, and relays. Mr. Tork and Staff

2. General Program for Men. II. 1 hr. Required of all freshmen in the University (except majors in Physical Education). Students in the regular program will be grouped for organized competition in the following activities: conditioning exercises, basketball, bowling, handball, volleyball, tennis, and track and field. Mr. Tork and Staff

GENERAL PROGRAM COURSES FOR WOMEN

General Program for Women. Physical Education 3, Orientation to Physical Education, is required of all freshman women students in the fall semester.

The student should select one course from each of the following groups to complete the four-hour requirement:

Group 1—Phys. Educ. 14, 15, 16 ..... (Swimming)

Group 2—Phys. Educ. 5, 11, 12, 17, 18 ..... (Dancing)

Group 3—Phys. Educ. 4, 6, 7, 8, 13, 21, 25 ..... (Individual Sports)

3. Orientation in Physical Education. I. 1 hr. Team sports, body mechanics, and dance. Required of all freshman women.
Mrs. Beto, Miss Carruth, Miss Blakemore

4. Golf and Bowling. I, II. 1 hr. Mrs. Pearse

*This requirement should be met by the men in their first year of residence and by women in their first two years of residence. Two hours of general program form the requirement for men and four hours for women are required for teacher certification.

5. Ballroom Dance. I, II. 1 hr. Fundamentals of ballroom dancing. For men and women students. Mrs. Wiedebusch

6. Stunts, Tumbling, and Trampoline. I, II. 1 hr. Staff

7. Archery. I, II. 1 hr. Miss Hurst

8. Recreational Sports. I, II. 1 hr. Badminton, table tennis, deck tennis, shuffleboard. Miss Hurst

9. Team Sports. I. 1 hr. Volleyball and hockey. Mrs. Beto

10. Team Sports. II. 1 hr. Basketball and softball. Mrs. Beto

11. Folk Dancing. I, II. 1 hr. Miss Hurst

13. Tennis and Bowling. I, II. 1 hr. Mrs. Pearse

14. Elementary Swimming and Diving. I, II. 1 hr. Miss Blakemore

15. Intermediate Swimming and Diving. I, II. 1 hr. Miss Blakemore

16. Life Saving and Water Safety. II. 1 hr. (Opportunity to qualify for American Red Cross Senior Life Saving Certificate.) Miss Blakemore

17. Elementary Modern Dance. I, II. 1 hr. Mrs. Wiedebusch

18. Advanced Modern Dance. I, II. 1 hr. PR: Phys. Educ. 17. (Open to Men and Women). Mrs. Wiedebusch

21. Physical Fitness. I, II. 1 hr. Mrs. Beto

25. Fencing. I, II. 1 hr. Staff

NOTE: Students may select any course from the above groups for which they have not previously received credit.

Physical Education for Elementary Teachers (*Not for P.E. Majors*)

Women students who are planning to teach in elementary grades are required to take the following courses:

41. Physical Education for Elementary Teachers. I. 1 hr. (W).

42. Physical Education for Elementary Teachers. II. 1 hr. (W).

43. Physical Education for Elementary Teachers. I, II. 2 hr.

Men students who are planning to teach in elementary grades are required to take the following courses:

1. General Program for Men. I. 1 hr.

2. General Program for Men. II. 1 hr.

43. Physical Education for Elementary Teachers. I, II. 2 hr.

Camp Counselor Recommendations

To be eligible for recommendation by the School of Physical and Health Education, Recreation, and Safety as camp counselors, students majoring in Physical Education or Recreation must have completed Rec. 1, 5, 11, 12, 102, and 107. Other students must complete, in addition to the courses listed for majors in Physical Education and Recreation, four credit hours in activity courses in Physical Education, including Phys. Educ. 54 and 66, or equivalents.

REQUIREMENTS FOR DEGREES

The degree of Bachelor of Science in Physical Education or the degree of Bachelor of Science in Recreation may be conferred upon any student who satisfies the entrance requirements and offers 128 hours with an average of "C." Candidates for Physical Education degrees must also meet certain School and departmental requirements.

Each undergraduate who is a candidate for an initial baccalaureate degree and who began college work after June 1, 1952, must pass a proficiency examination in English after the beginning of the junior year in order to qualify for graduation. (This examination, however, is not required of students of foreign countries whose native language is other than English). He shall take the examination during the first semester of his junior year, and if not declared proficient, shall repeat the examination as many times as necessary. The examination shall be administered by the English Proficiency Board.

By order of the Board of Governors, no degree will be conferred upon any candidate prior to payment of all tuition, fees, and other indebtedness to any unit of the University.

PHYSICAL EDUCATION: REQUIRED AND ELECTIVE SUBJECTS

Of the 128 hours which are required for the degree of Bachelor of Science in Physical Education, at least 45 hours are required in the School of Physical and Health Education, Recreation, and Safety. The remaining hours must be selected from such courses as may be approved by the adviser. A candidate for a degree is advised to make a selection of one of the teaching combinations on page 13 and to complete the number of semester hours required in each teaching group.

Courses are arranged to meet University requirements for the degree of Bachelor of Science in Physical Education as well as state requirements for teacher certification. The curriculum for the four-year course has been so arranged that consideration is given to various activities which should constitute a well-rounded program of physical education for children and youth. The courses are arranged in ten groups as follows:

A. Required activity courses in Physical Education for men: Phys. Educ. 5, 51, 52, 53, 54, 55, 56, 121, 125, 126, 132, 155, and for women: 5, 31, 32, 33, 35. 54, 61, 63, 66, 130, 131, 132.

B. Required theory courses in Physical Education for both men and women, unless otherwise indicated are: Phys. Educ. 36 (W),* 71, 155 (M),* 175, 176, 177, 180, 191, 278.

C. Required courses in Recreation: Rec. 4.

D. Required courses in Health Education: Health Educ. 2 and 101.

E. Required courses in Safety Education: Safety Educ. 127 (W) and Safety Educ. 181.

F. Required courses in English.

G. Required courses in science which furnish a background for phyiscal education.

H. Required courses in Education which consider the principles of general education.

I. Required courses in social studies.

J. Required courses in Music and Art.

K. Required courses in Military Science and Air Science for men of the University.

L. Elective courses which are taken at the pleasure of the student.

*Courses marked (M) are open to men; courses marked (W) are open to women; all others are open to both men and women.

It is understood that a sound and vigorous body is essential to all students who elect this curriculum. Each student must therefore pass a thorough physical examination before he will be allowed to enroll in this program. Special emphasis is placed upon personal and professional qualifications of the student as well as upon a high standard of scholarship.

Student teaching in physical education is available in the University High School and in the elementary schools of Morgantown. Opportunity is provided also in University High School for practice coaching of high school athletic teams. Assisting in the General Program in physical education is required of all majors.

All students registered in the School of Physical and Health Education, Recreation, and Safety must successfully pass a motor ability test before they are permitted to take any activity courses.

All sophomores, juniors, and seniors, physical education majors or pre-physical therapy students, are required to complete fifteen units of field work in projects related to physical education and recreation.

Recommendation for Certification

The prospective teacher who intends to apply for certification for school service in the state should take care to satisfy requirements for other teaching fields and required courses in Education and Physical Education.

Method for Computing Grade-Point Average for Teacher Certification, Effective June 5, 1956

For teacher certification, the student shall be responsible for every registration in a course. The grade-point average shall be computed on *all* work attempted.

Suggested Teaching Combinations for First-class High School Certification

1. Physical education and biological science.
2. Physical education and mathematics.
3. Physical education and social studies.
4. Physical education and English.
5. Physical education and physical and general science.
6. Physical education and physical science.
7. Physical education and biological and general science.
8. Physical education and industrial arts.
9. Other combinations approved by the adviser.

The elementary curriculum will qualify the student to meet certification requirements in physical education, English, social studies, and (by taking Physical Science 2) biological science in the junior high school (grades 7-8).

THE CURRICULUM FOR PHYSICAL EDUCATION MAJORS

Degree: Bachelor of Science in Physical Education

The curriculum for majors is organized to provide professional preparation for men and women who are desirous of becoming teachers of health and physical education in elementary schools, high schools, and colleges. The courses are arranged to meet the University requirements for the degree of Bachelor of Science in Physical Education, as well as the state requirements for teacher education in secondary and elementary schools.

SECONDARY

Women

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
Art 30	2	Health Educ. 2	2
P.E. 5	1	P.E. 32	1
P.E. 31	1	P.E. 33	1
P.E. 35	1	P.E. 36	2
P.E. 71	2		
	17		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Educ. 105	3	Educ. 106	3
Soc. Sci. 1	4	Soc. Sci. 2	4
English 18	3	P.E. 54	2
Rec. 4	3	P.E. 66	1
P.E. 61	1	English 5 or 6	3
P.E. 63	1	Electives	3
Music 10	2		
	17		16

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Safety Educ. 127	2	Zool. 171	4
Safety Educ. 181	2	P.E. 131	1
Health Educ. 101	2	P.E. 132	1
P.E. 130	1	P.E. 176	2
P.E. 175	5	P.E. 177	3
Electives	4	P.E. 180	2
		Electives	4
	16		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
P.E. 191	2	P.E. 278	3
*Educ. 120) or	4	*Educ. 120) or	4
*Educ. 124)		*Educ. 124)	
elect.	6	elect.	6
*Educ. 152)	2	*Educ. 152)	2
Electives	2	Electives	2
	16		17

*Required of all students desiring certification for teaching.

Men

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
P.E. 5	1	Health Educ. 2	2
P.E. 51	2	P.E. 52	1
P.E. 71	2	P.E. 53	2
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 5 or 6	3	English 18	3
Soc. Sci. 1	4	Soc. Sci. 2	4
Music 10	2	Art 30	2
P.E. 55	2	P.E. 54	2
Rec. 4	3	P.E. 56	2
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives	2-3	Electives	3
	18-19		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Educ. 105	3	Educ. 106	3
Health Educ. 101	2	Zool. 171	4
P.E. 121	2	P.E. 126	1
P.E. 125	1	P.E. 132	1
P.E. 155	2	P.E. 176	2
P.E. 175	5	P.E. 177	3
Safety Educ. 181	2	P.E. 180	2
		Electives	2
	17		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
P.E. 191	2	P.E. 278	3
*Educ. 120) or	4	*Educ. 120) or	4
*Educ. 124)		*Educ. 124)	
elect.	6	elect.	6
*Ed. 152)	2	*Educ. 152)	2
Electives	3	Electives	2
	17		17

*Required for those students desiring certification for teaching. May be taken the first or second semester of senior year.

ELEMENTARY

Women

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
Art 30	2	Health Educ. 2	2
P.E. 5	1	Math. 6	3
P.E. 31	1	P.E. 32	1
P.E. 35	1	P.E. 33	1
P.E. 71	2		
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Educ. 105	3	Educ. 106	3
Soc. Sci. 1	4	Soc. Sci. 2	4
English 18	3	English 5 or 6	3
Hist. 52	3	Hist. 53	3
Music 10	2	Art 2	2
Art 1	2	P.E. 54	2
P.E. 61	1	P.E. 66	1
	18		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Phys. Sci. 1	4	P.E. 131	1
Safety Educ 127	2	P.E. 132	1
Health Educ. 101	2	P.E. 176	2
Music 11	2	P.E. 177	3
P.E. 63	1	P.E. 180	2
P.E. 130	1	Educ. 141	3
P.E. 175	5	Music 12	2
		Speech 3 or 11	3
	17		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
P.E. 191	2	P.E. 278	3
For. 140	3	Educ. 142	3
Safety Educ. 181	2	Educ. 143	2
Lib. Sci. 203	3	Educ. 144	2
Geol. 107	3	Educ. 145	2
Elective	3	Educ. 146	6
	16		18

Men

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
P.E. 5	1	Health Ed. 2	2
P.E. 51	2	P.E. 52	1
P.E. 71	2	P.E. 53	2
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 5 or 6	3	English 18	3
Soc. Sci. 1	4	Soc. Sci. 2	4
Music 10	2	Art 30	2
P.E. 55	2	P.E. 54	2
Mil. or Air Sci. 3	2	P.E. 56	2
Educ. 105	3	Mil. or Air Sci. 4	2
Lib. Sci. 203	3	Educ. 106	3
	19		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
P.E. 175	5	P.E. 132	1
Safety Educ. 127	2	P.E. 176	2
Music 11	2	P.E. 177	3
Art 1	2	P.E. 180	2
Hist. 52	3	Music 12	2
Math. 6	3	Art 2	2
		Hist. 53	3
		Safety Educ. 181	2
	17		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Phys. Sci. 1	4	P.E. 278	3
Speech 11 or 3	3	Educ. 142	3
For. 140	3	Educ. 143	2
Geol. 107	3	Educ. 144	2
Health Educ. 101	2	Educ. 145	2
Educ. 141	3	Educ. 146	6
	18		18

Recreation Minor for Physical Education Majors

For students who, in addition to preparing for physical education as a teaching field, have also the objective of fitting themselves for recreation leadership responsibilities in schools or in recreation programs sponsored by or in conjunction with school systems, a recreation minor is available. Such a minor also will add opportunities for service and increased income in summer recreation programs in communities, industries, or private agencies. Students are required to take the following courses as a minimum:

	Hr.
Rec. 11 (Nature Recreation and Camping)	3
Rec. 12 (Social Recreation)	3
Rec. 102 (Program Planning)	3
Rec. 104 (Functional Planning of Facilities)	3
Rec. 107 (Recreation Leadership and Group Work)	3
Rec. 282 (Recreation Administration)	3
	18

THE CURRICULUM FOR RECREATION MAJORS

Degree: Bachelor of Science in Recreation

The major curriculum in recreation is planned primarily to prepare for professional responsibilities in community recreation systems and services, public and private, in industries, public housing, hospitals, and similar fields.

Of the 130 hours which are required for the degree of Bachelor of Science in Recreation at least 57 hours are required in the School of Physical and Health Education, Recreation, and Safety. The remaining hours must be selected from courses approved by the adviser. It is generally advisable for those entering the recreation profession to prepare themselves in at least one recreation interest area in addition to the physical education activities, by electing as many courses as possible in arts and crafts, or dramatics, or music, or nature recreation.

During the summer between the junior and senior years all Recreation majors are required to do at least eight weeks of supervised recreation leadership field work. The selected agency in which the student will do his work must be approved by the Chairman of the Department of Recreation. Arrangements will be made for agency supervision and periodic visitation by the faculty supervisor. Evaluation of reports and observations will be made with the student.

The courses are arranged in 14 groups and meet University requirements for the degree of Bachelor of Science in Recreation:

A. Required courses in Recreation (33).

B. Required courses in Physical Education (W-14) (M-13).

C. Required courses in English and Speech (12).

D. Required courses in Science including P.E. 175 (12).

E. Required courses in Social Studies (6).

F. Required courses in Education (3).

G. Required courses in Social Sciences (15).

H. Required courses in Forestry (W-3) (M-5).

I. Required courses in Health and Safety (6).

J. Required courses in Military Science or Air Science (M-8).

K. Required courses in Art, Drama and Music (10).

L. Required courses in Journalism (3).

M. One summer (at least 8 weeks) supervised field work (Rec. 145).

N. Elective courses: By advisement.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Biol. 1	4	Art 30 (W)	2
English 1	3	English 2	3
Hist. 1	3	English 5	3
Mil. or Air Sci. 1 (M)	2	Mil. or Air Sci. 2 (M)	2
P.E. 5	1	Music 10 (W)	2
P.E. 31 (W)	1	P.E. 32 (W)	1
P.E. 33 (W)	1	P.E. 52 (M)	1
Rec. 5	2	P.E. 53 (M)	2
		Rec. 1	3
		Rec. 11	3
Women	15	Women	17
Men	15	Men	17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Econ. 1	3	Mil. or Air Sci. 2 (M)	2
English 18	3	Music 10 (M)	2
Mil. or Air Sci. 3 (M)	2	P.E. 36 (W)	2
P.E. 35 (W)	1	P.E. 54	2
P.E. 55 (M)	2	P.E. 56 (M)	2
P.E. 61 (W)	1	P.E. 66 (W)	1
Psych. 1	3	Rec. 102	3
Rec. 12	3	Sociol. 1	3
Speech 11 (W)	3	Speech 11 (M)	3
		Speech 165 (W)	2
		Speech 166 (W)	1
		Electives (W)	2
Women	17	Women	16
Men	16	Men	17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ed. 105 (or Psych. 122) elect. (W)	3	Ed. 105 (or Psych. 122) elect. (M)	3
Health Educ. 101	2	For. 140	3
P.E. 125 (M)	1	Music 78	1
P.E. 130 (W)	1	P.E. 126 (M)	1
P.E. 175	5	P.E. 131 (W)	1
Rec. 107	3	P.E. 132	1
Safety Educ. 127	2	Rec. 104	3
Speech 165 (M)	2	Rec. 271	3
Speech 166 (M)	1	Electives (W)	4
Women	16	Women	16
Men	16	Men	15

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 142 (M)	2	Pol. Sci. 101	3
Journ. 212	3	Rec. 202	3
Rec. 145	3	Rec. 206	3
Rec. 282	3	Sociology (200 level)	3
Rec. 296	3	Electives	3
Safety Ed. 181	2		
Soc. Work Course (200 level)	3		
Women	17	Women	15
Men	19	Men	15

ELECTIVES

Art 30 or 130 (Appreciation of the Arts) . . . 2
Art 121 (Fundamentals of Design) . . 3
Art 122 (Fundamentals of Design) . . 3
Art 127 (Crafts) . . . 3
Econ. 115 (Labor Problems) . . . 3
Econ. 218 (Collective Bargaining and Labor Relations) . . . 3
Econ. 241 (Public Finance) . . . 3
Educ. 221 (Audio-Visual Resources) . 2
English 5 or 6 (American Literature) . 3
English 16 (Creative Writing) . . . 3
English 160 (Contemporary Lit.) . . . 3
Forestry 142 (Rec. Development) . . . 2
Home Econ. 133 (Home Crafts) . . . 2
Management 216 (Personnel Management) . . . 3
Philos. 104 (Principles) . . . 3
P.E. 225 (Officiating) . . . 2
Psych. 114 (Psych. in Personnel Work) . . . 3
Psych. 115 (Psych. in Industry) . . . 3
Psych. 116 (Social Psych.) . . . 3
Psych. 122 (Development Psych.) . . . 3
Psych. 125 (Mental Hygiene) . . . 3
Psych. 229 (Abnormal Psych.) . . . 3
Psych. 233 (Problem Children) . . . 3
Soc. Work 212 (Community Resources) . . . 3
Soc. Work 215 (Psychosocial Growth) 2
Soc. Work 221 (Field of Social Work) 3
Soc. Work 230 (History of Social Work) . . . 3
Soc. Work 260 (Child Welfare) . . . 3
Soc. Work 285 (Introduction to Public Welfare) . . . 3
Sociol. 205 (Urban Sociology) . . . 3
Sociol. 206 (Rural Sociology) . . . 3
Sociol. 208 (The Community) . . . 3
Sociol. 210 (Marriage and Family) . . 3
Sociol. 211 (Soc. of Childhood) . . . 3
Sociol. 220 (Social Change) . . . 3
Sociol. 231 (Race Relations) . . . 3
Sociol. 234 (Juvenile Delinquency) . . 3
Sociol. 235 (Collective Behavior) . . 3
Sociol. 244 (Culture and Personality) 3

Sociol. 250 (Human Relations in Industry) 3
Sociol. 270 (Group Dynamics) 3
Speech 3 (Voice and Diction) 3
Speech 120 (Group Discussion) 3
Speech 125 (Advanced Public Speaking) 3
Speech 161 (Stage Scenery) 3
Speech 162 (Play Directing) 3
Speech 163 (Stage Lighting) 3
Speech 164 (Theatre Workshop) 1-3
Speech 200 (Art of Storytelling) 2
Speech 223 (Advanced Group Discussion) 2
Speech 268 (Creative Dynamics) 2
Zool. 265 (Ornithology) 3

The major curriculum in Recreation is planned primarily to prepare for professional recreation responsibilities in community systems and services, public and private, in industry, public housing and similar fields. Recreation majors who wish to be certified to teach physical education should take during the regular four-year period, and in whatever additional semesters are necessary, the following courses in addition to those listed in the Recreation curriculum:

Course Number and Title	*Men*	*Women*
Health Educ. 2, Personal and Community Hygiene	2	2
Phys. Ed. 63, Hockey and Volleyball		1
Phys. Ed. 71, Orientation in Physical Education	2	2
Phys. Ed. 121, Athletic Training	2	
Phys. Ed. 176, Adapted Program	2	2
Phys. Ed. 278, Administration of Physical Education	3	3
Zool. 171, Human Physiology	4	4
Education 105, 106, 109, 120, 124, 152	20	20

Recreation Minor

Those students who are majoring in fields other than physical education may elect to work for a minor in recreation. This will prepare them for leadership responsibility in various types of recreation service such as private agencies and summer programs in communities. Students majoring in Education may prepare themselves for recreation leadership in schools or in recreation programs sponsored by or in conjunction with school systems. The following courses are required for a minor in recreation:

Course Number and Title	*Hr.*
Rec. 1, Introduction to Recreation	3
Rec. 5, Arts and Crafts in Recreation	2
Rec. 11, Nature Recreation and Camping	3
Rec. 12, Social Recreation	3
Rec. 102, Program Planning	3
Rec. 107, Recreation Leadership	3
Rec. 282, Recreation Administration	3
Music 10, Music in Human Relations	2
Phys. Ed. 54, Individual and Dual Sports	2

THE CURRICULUM FOR PRE-PHYSICAL THERAPY STUDENTS

Degree: Bachelor of Science in Physical Education

The following curriculum for pre-physical therapy students is organized to meet the University requirements for the degree of Bachelor of Science in Physical Education as well as satisfying the entrance requirements to physical therapy schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

Entrance requirements to the various schools of physical therapy vary. The majority of physical therapy schools approved by the American Medical Association accept students if: (1) they have graduated from an approved school of physical education; (2) they have graduated from an approved school of nursing; or (3) they have completed two or three years of college work. Preference is given to those students who have specified credits in physics, chemistry, biology, psychology, and sociology.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
P.E. 3 (W)	1	Health Educ. 2	2
P.E. 5	1	P.E. 32 (W)	1
P.E. 31 (W)	1	P.E. 33 (W)	1
P.E. 35 (W)	1	P.E. 36 (W)	2
P.E. 51 (M)	2	P.E. 52 (M)	1
P.E. 71	2	P.E. 53 (M)	2
Mil. or Air Sci. 1 (M)	2	Mil. or Air Sci. 2 (M)	2
Women	16	Women	16
Men	17	Men	17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Soc. Sci. 1	4	Soc. Sci. 2	4
Physics 1	4	Physics 2	4
Rec. 4	3	Art 30	2
Music 10	2	English 5 or 6	3
P.E. 55 (M)	2	P.E. 54	2
P.E. 61 (W)	1	P.E. 56 (M)	2
P.E. 63 (W)	1	Mil. or Air Sci. 4 (M)	2
Mil. or Air Sci. 3 (M)	2	Elective* (W)	3-4
Elective* (W)	2-4		
Women	17-19	Women	18-19
Men	17	Men	19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Health Educ. 101 or 102	2	Zool. 171	4
Safety Educ. 181	2	Psych. 4	4
Psych. 3	4	P.E. 132	1
Safety Educ. 127 (W)	2	P.E. 176	2
P.E. 155 (M)	2	P.E. 177	3
P.E. 175	5	P.E. 180	2
Art 115	3		
Women	18	Women	16
Men	18	Men	16

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1	4	Chem. 2	4
P.E. 121 (M)	2	English 18	3
P.E. 125 (M)	2	Psych. 229	3
P.E. 130 (W)	1	P.E. 126 (M)	1
P.E. 191	2	P.E. 131 (W)	1
Speech 11	3	P.E. 278	3
Elective* (W)	4-8	Elective*	3
Elective* (M)	3-6		
Women	14-18	Women	17
Men	15-18	Men	17

*Electives should be chosen in accordance with admission requirements of the physical therapy school in which the student expects to enroll. Suggested electives are: Educ. 105, 106; Foreign Language (French, German, Italian, Russian, Spanish 1 and 2); Math. 2, 3, 4; Psych 110, 116, 122, 125, 218, 222, 236; Sociol. 210, 211, 234, 235, 243; Speech 3, 75, 256; Zool. 231, 232, 233, 235, 236, 237.

CORRECTIVE THERAPY[1]

West Virginia University, through an affiliation with the Veterans Administration, prepares men and women as corrective therapists for possible employment under civil service regulations in Veterans Administration Hospitals throughout the United States.[2]

Students pursuing certification requirements for a Bachelor of Science Degree in Physical Education can obtain preparation as corrective therapists by completing 240 clock hours of clinical laboratory experience in a general, medical, surgical and/or psychiatric hospital. The laboratory experience is met by completing Physical Education 276, Residency in Corrective Therapy, a six weeks' course offered during the summer at a Veterans Hospital under the auspices of the professional staff. Room and board is provided by the supervising hospital.

Students interested in meeting the requirements for employment in the Veterans Administration as corrective therapists should indicate such an interest prior to completing their junior year. Subsequent to completing the course, those interested trainees will file application for Federal employment with the Board of Civil Service Examiners, Veterans Administration Central Office, Washington, D. C.

[1]Corrective therapy is the application of the principles, techniques, and psychology of medically oriented physical education to assist the physician in the accomplishment of prescribed objectives. It is administered under the direct supervision of a physician who determines the goals and limits of the therapist's work and specifies these by prescription.

[2]Present affiliation is with the Veterans Administration Hospital, Leech Farm Road, Pittsburgh 6, Pa.

GRADUATE SCHOOL

The School of Physical and Health Education, Recreation, and Safety offers courses leading to the Master of Science Degree, with an emphasis in Health and Safety Education, Physical Education, or Recreation—or combinations of all three areas.

Additional information concerning graduate work in the School of Physical and Health Education, Recreation, and Safety may be obtained in the *Announcements* of the School and the *Announcements* of the Graduate School.

COURSES OF INSTRUCTION

HEALTH EDUCATION

2. Personal and Community Health. I, II. 2 hr. Those phases of healthful living which should be understood by all college students. Special emphasis on aspects of personal health. Mr. Holter

101. The Elementary School Health Program. I, II, S. 2 hr. PR: Educ. 105. A study and analysis of the health program which takes place in the school or through the efforts of school personnel; the organization, educational aspects, and personnel relationships involved in school health services, healthful school living, and health education. Required for teacher certification. Mr. Holter

102. The Secondary School Health Program. I, II, S. 2 hr. PR: Educ. 105. A study and analysis of the health program which takes place in the school or through the efforts of school personnel; the organization, educational aspects, and personnel relationships involved in school health services, healthful school living, and health education. Required for teacher certification. Mr. Holter

201. Advanced School Health. I, S. 3 hr. PR: Health Educ 101, 20 hr. of Education, or consent. An analysis of problems in school health services, healthful school living, the nature of health education, and the scope of health instruction which confronts teachers and administrators. Mr. Holter

205. Philosophy of Health Education. I, S. 3 hr. PR: Health Educ. 2, and 101, or equiv. Analysis of the scientific bases, purposes, procedures, and content, with implications for school and public health education programs. Mr. Holter

301. Community Health. II, S. 3 hr. PR: Health Educ. 2, and 205, or equiv. Health problems requiring community action, basic public health activities, community organization for health protection, voluntary health agencies, school health programs and the role of state and federal agencies in the community health program. Mr. Holter and Visiting Lecturers

376. Evaluation of Health Information. I, S. 3 hr. PR: Health Educ. 2, and 201, or 20 hr. of Education and consent. Study of published material to determine basic scientific accuracy and value. Mr. Holter

394. Seminar in Health Education. I, II, S. 4 hr. PR: Health Educ. 205. An overview and critical analysis of the literature and research in health education. Mr. Holter

397. Individual Research Problems in Health Education. I, II, S. 1-4 hr. PR: Health Educ. 205, and HPERS* 375 or 395, or Educ. 301. Opportunity for independent study and investigation of pertinent problems. For advanced students with practical experience. Mr. Holter

398. Practicum in Health Education. I, II, S. 4 hr. PR: Health Educ. 394, and HPERS 396 and 397. Program planning, curriculum development and job functions in health education. Mr. Holter

*See page 443.

PHYSICAL EDUCATION

Professional Curriculum

30. Beginning and Intermediate Swimming. I, II. 1 hr. (M). Instruction in the basic swimming strokes and beginning diving. All physical education and recreation majors who do not pass the swimming skill tests must register for this course. Mr. Markel

31. Team Sports. I. 1 hr. (W). Fundamentals, skills, and practice in playing soccer and basketball. Mrs. Beto

32. Team Sports. II. 1 hr. PR: Phys. Educ. 31. (W). Techniques and practice in teaching and officiating basketball. Fundamental skills and practice in softball. Mrs. Beto

33. Swimming and Diving. I. 1 hr. PR: Phys. Educ. 14 or equiv. (W). Miss Blakemore

34. Tennis and Archery. I. 1 hr. (W). Miss Hurst

35. Modern Dance Technique. I. 1 hr. (W). Mrs. Wiedebusch

36. Movement and its Rhythmic Structure. II. 2 hr. (W). PR: Phys. Educ. 35. Understanding of the nature and scope of rhythm in physical education programs. Mrs. Wiedebusch

37. Advanced Modern Dance. I, II. 1 hr. PR: Phys. Educ. 35 (W). Continuation of Phys. Educ. 35, including methods of teaching. Mrs. Wiedebusch

38. Dance Composition. II. 2 hr. PR: Phys. Educ. 35, 36 (W). Problems in force, time, and space as elements of expressive movement. Mrs. Wiedebusch

†41. Physical Education for Elementary Teachers. I. 1 hr. (W). A variety of basic activities giving an understanding of content in the total physical education program of the elementary school. Miss Hurst

42. Physical Education for Elementary Teachers. II. 1 hr. (W). A continuation of Phys. Educ. 41. Miss Hurst

†43. Physical Education for Elementary Teachers. I, S. 2 hr. PR: Phys. Educ. 1 and 2 or 41 and 42, or consent. Philosophy, objectives, identification of physical education, health education, and recreation, and a broad selection of activities adapted to the primary and intermediate levels. Laboratory work and observation in the elementary schools are required. Mr. Tork and Mrs. Wiedebusch

51. Fundamentals of Baseball and Gymnastics. I. 2 hr. (M). Mr. Bonsall and Mr. Harrick

52. Advanced Swimming, Lifesaving, and Water Safety. I, II. 1 hr. (M). PR: Phys. Educ. 30 or equiv. Theory and practice in aquatics and water safety, including American Red Cross Senior Lifesaving Certificate. Mr. Markel

53. Junior and Senior High School Activities and Games. I. 2 hr. (M). Theory and fundamentals of speedball, soccer, volleyball, touch football, archery, and graded for grades 1-2 and lead-up games. Mr. Bonsall and Mr. Markel

54. Individual and Dual Sports. II, S. 2 hr. Theory and practice in fundamentals of badminton, bowling, golf, handball, and tennis. Mr. Semon

55. Fundamentals of Basketball and Wrestling. I. 2 hr. (M). Mr. King and Mr. Harrick

56. Fundamentals of Track and Football. II. 2 hr. (M). Mr. Romanoski and Mr. Barnette

†These courses are required for certification for Elementary School teaching certificates.

61. Stunts, Tumbling, and Trampoline. II. 1 hr. (W). Mr. Bonsall

63. Hockey and Volleyball. I. 1 hr. (W). Fundamentals, skills, and practice. Miss Blakemore

66. Graded Games and Lead-up Games. II. 1 hr. Games for all ages which may be used in home, school, playground, and gymnasium, and lead-up games in various sports. Miss Hurst

68. Officiating Athletics. II. 1 hr. (W). Rules, techniques, and laboratory work. Mrs. Beto

71. Orientation in Physical Education. I. 2 hr. Purposes, scope, and possibilities in health education, physical education, recreation, and coaching in the school program. Mr. Duncan and Mr. Semon

121. Athletic Training and First Aid. I. 2 hr. (M). Lectures, demonstrations, and practice work in training and first aid in athletics. Mr. Gwynne and Mr. Donley

124. Instructorship in Swimming, Lifesaving, and Water Safety. II. 1 hr. PR: Phys. Educ. 52 or equiv. Teaching methods in swimming and water safety. Meets American Red Cross Certification Standards and course completion carries eligibility for teaching swimming, lifesaving, and water safety. Open only to students who have valid lifesaving cards. Mr. Yost

125. Program Assisting. I. 1 hr. (M). PR: Phys. Educ. 51, 52, 53, 54, 55, 56. Mr. Semon

126. Program Assisting. II. 1 hr. (M). PR: Phys. Educ. 51, 52, 53, 54, 55, 56. Mr. Semon

130. Program Assisting. I. 1 hr. (W). Miss Carruth

131. Program Assisting. II. 1 hr. (W). Miss Carruth

132. Folk Dancing. II. 1 hr. Fundamentals and materials of folk dancing. Miss Hurst

155. Theory of Coaching. I. 2 hr. PR: Phys. Educ. 51, 55, 56. A study of coaching methods, systems, and team development in the various varsity-type sports. Mr. Barnette

171. Basic Rhythms and Dance Accompaniment. II. 2 hr. PR: One semester of modern dance. Understanding of the basic principles of rhythm as they relate to body movement. (Ability to play the piano is not required.) Miss Hutchinson

175. Anatomy and Kinesiology. I, II. 5 hr. Principles of mechanics of body movement in relation to anatomical structure. Mrs. Beto and Dr. Hesen

176. The Adapted Program in Physical Education. II. 2 hr. PR: Phys. Educ. 175. A basic course dealing with deviations from the normal and the organizing and adapting of physical education programs to meet the needs of atypical students or those with special problems. Mr. Yost

177. History and Principles of Physical Education. II. 3 hr. Development of physical education from early civilization to present time. Basic principles underlying modern programs. Miss Carruth

180. The Physical Education Program in the Elementary School. II. 2 hr. Theory, methods, techniques, and practice of activities in physical education for elementary school children. Mr. Tork

191. Introduction to Tests in Health and Physical Education. I. 2 hr. A background course in physical achievement tests. History of development; review of outstanding tests. Essential procedures used in evaluating tests and their results, including statistical analysis. Mr. Yost

206. Program in Individual Sports. S. 3 hr. PR: Phys. Educ. 51, 55, 56, 155 or equiv. Designed for coaches of interscholastic athletics. A study of advanced coaching techniques and methods in track and field activities, wrestling, and gymnastics. Messrs. Bonsall, Harrick, and Romanoski

207. Program in Team Sports. S. 3 hr. PR: Phys. Educ. 51, 55, 56, 155, or equiv. Designed for coaches of intercollegiate athletics. A study of advanced techniques, systems of play, offense, defense, methodology, staff organization, and related problems in the coaching of football, basketball, and baseball. Messrs. Barnette, Harrick, and King

208. Advanced Athletic Training and Conditioning. I, S. 3 hr. PR: Phys. Educ. 121, 175; Zool. 171, or equiv. To acquaint graduate students with recent theories, practices, and techniques in the prevention, care, and treatment of athletic injuries. Mr. Donley

209. Officiating Football and Basketball. I, S. 2 hr. Rules and techniques of officiating, officials' organizations, and laboratory work. Mr. Tork

210. Program in Sports. S. 3 hr. (W). PR: Phys. Educ. 31, 32, or equiv. Designed especially for women engaged in teaching and coaching. Organization and administration of individual, dual, and team sports. Practicum in girls' and women's sports. Mrs. Beto

211. Organization and Administration of Intramural Sports. I, S. 3 hr. PR: 4 hr. of physical education activity courses. Critical analysis with view to justification from standpoint of objectives and of contribution to general welfare of students participating. Organization and administration of programs on secondary and college levels. Mr. Semon

212. Extracurricular Physical Education Activities for Secondary School Girls. I, S. 3 hr. PR: Consent. Critical analysis of physical education extracurricular activities from the standpoint of objectives and contributions to the general welfare of the participants; value of the activities in the school and community; relationship to the physical education program; problems associated with the organization and administration of the program. Miss Blakemore

213. Administration of Athletics. S. 3 hr. PR: Experience in coaching and administration. The course is designed for persons engaged in actual coaching and administration. A study of the problems associated with the organization and administration of interscholastic and intercollegiate athletic programs and their relationship to physical education. Mr. Barnette and Mr. Duncan

215. Rhythms and Dance. II, S. 3 hr. PR: Consent. Principles of movement, materials, and practicum in dance. Miss Hurst

219. Modern Dance Techniques and Composition. I, S. 3 hr. PR: Phys. Educ. 35 and 36 or consent. Application of scientific principles of movement; basic principles of music as related to dance movement; choreographic principles; practicum in dance movement. Principles for teaching the dance and problems involved in planning programs. Miss Carruth

275. Principles and Practices of Adapted Physical Education. I, S. 2 hr. PR: Zool. 171, Phys. Educ. 175, or equiv. Principles and philosophy in building an adapted program, types of injuries, classification of students, and application of adapted exercises. Mr. Yost

278. Administration of Physical Education. II, S. 3 hr. PR: Phys. Educ. 71, 177. Modern theories in physical education and guiding principles in organization and administration of the program. Mr. Duncan

292. Physical Education in the Elementary School. I, S. 2 hr. PR: Teaching experience or consent. Philosophy, objectives, activities, equipment, utilization

of space, program planning, and evaluation for a functional program in elementary school physical education. Mr. Tork

294. Philosophy of Physical Education. I, II, S. 3 hr. PR: Phys. Educ. 177 and 278 or equiv. and consent. Study of the place of physical education in education and modern living; philosophic processes in physical education; critical analysis of various problems confronting the physical educator. Miss Carruth

295. Residence in Corrective Therapy. S. 6 hr. PR: Phys. Educ. 175, 176, and selected phychology courses. An intensive 6-week course offered during the Summer under the auspices of the professional staff of a hospital. The course consists of 240 clock hours of staff lectures and practical clinical experience in corrective therapy as it is integrated in the Physical Medicine and Rehabilitation Program of a hospital. Mr. Yost and Staff of Supervising Hospital

319. History and Philosophy of the Dance. II, S. 3 hr. PR: Phys. Educ. 219 or equiv. A cultural survey of the dance as an expression of the society it represents; philosophy of the dance; the relation of dance to other art forms; dance as an educational experience and the study of the works of the outstanding artists of today. Miss Carruth

380. Curriculum Development in Physical Education. S. 3 hr. PR: Phys. Educ. 294. Application of growth and development of various age groups to program planning in physical education; evaluation of activities; formulation of criteria as a basis for curriculum revision to meet changing needs in the school program. (Limited to major students.) Miss Carruth

394. Seminar in Physical Education. I, II, S. 4 hr. PR: Phys. Educ. 294. An overview and critical analysis of the literature and research in physical education. Miss Carruth, Mr. Holter, and Mr. Yost

397. Individual Research Problems in Physical Education. I, II, S. 1-4 hr. PR: Phys. Educ. 294, and HPERS 375 or 395; or Educ. 301. Opportunity for independent study and investigation of pertinent problems. For advanced students with practical experience. Miss Carruth, Mr. Holter, and Mr. Yost

398. Practicum in Physical Education. I, II, S. 4 hr. PR: Phys. Educ. 394, and HPERS 396 and 397. Program planning, curriculum development, and job functions in physical education. Miss Carruth, Mr. Holter, and Mr. Yost

RECREATION

1. Introduction to Recreation. II. 3 hr. A framework into which the other recreation courses with all their implications will fit. History, trends, concepts, relationship to other fields; surveys of national organizations, leaders, and literature. This course is basic to all other recreation courses. Mr. Scherlacher

4. Recreation and the School. I. 3 hr. Study of basic concepts of play, recreation, leisure, and their relationship to personal and community life. Human interest areas of approach to organized programs in school recreation centers. Mr. Scherlacher

5. Introduction to Arts and Crafts in Recreation. I. 2 hr. Workshop course. Place of arts and crafts in recreation, their organization, and integration with other phases of recreation. Mr. Hutchison

11. Nature Recreation and Camping. II. 3 hr. Lecture and workshop. Introduction to organized camping movement including purposes, camp sites, equipment, programs and leadership. Exploration of nature recreation and its relationship to community recreation and camping programs. Mr. Hutchison

12. Social Recreation. I. 3 hr. Lecture and workshop course. Place of social recreation activities, informal dramatics and music in community center, playground, camp and school extracurricular programs. Mr. Hutchison

102. Program Planning. II. 3 hr. PR: Rec. 1. Fundamentals for general program planning; considering needs, facilities, age groups, local customs, climatic factors, etc. Planning involved in playgrounds, indoor centers, playfields, parks, hospitals, voluntary agencies, industry, and camps. Mr. Hutchison

104. Functional Planning of Recreation Facilities. II. 3 hr. Lecture and workshop. Problems and principles governing the planning for functional and the effective usage of facilities in recreation. Emphasis on playgrounds, playfields, indoor centers, parks, camps, and swimming pools. Mr. Scherlacher

107. Recreation Leadership and Group Work. I. 3 hr. Meaning of leadership, its application to the field of recreation, and analysis of techniques. Examination of social group work method and its application in recreation particularly in national youth organizations. Mr. Hutchison

145. Field Work. 3 hr. Recreation majors are required to have at least 8 weeks of supervised recreation leadership field work. Usually during summer following junior year. Arrangements under the direction of adviser. Mr. Scherlacher

202. Philosophy of Recreation. II, S. 3 hr. PR: Major students in recreation, graduate students in Education and Physical Education; or consent. Interpretation of recreation as a basic part of the living process; importance to individual community, and national welfare; social and economic significance. Mr. Scherlacher

204. Recreation Hobbies. I, S. 2 hr. PR: Rec. 1 or equiv. Lecture and workshop. Value of hobbies to youth and adults; participation in various types of hobbies; methods of organization and presentation; nature and scope. Mr. Hutchison

206. Social Recreation for School-Age Groups. II, S. 3 hr. PR: 12 hr. in Education or consent. Workshop course. Planning and conduct of social activities, parties, picnics, special events and other recreation experience adapted to home, church, school, and community. Mr. Hutchison

265. Leisure and Recreation. I, S. 3 hr. PR: Physical Education and Recreation majors or 14 hr. in Education or consent. Study of leisure as a social phenomenon in our modern culture and its implications for recreation. Mr. Scherlacher

271. Administration of Camps and Preparation of Camp Counselors. II, S. 3 hr. PR: Rec. 11 or equiv. or consent. Principles involved in modern camping programs, methods of organization and administration of camps. Mr. Hutchison

282. Administration of Recreation. I, S. 3 hr. PR: Major in recreation, graduate status in Education or Physical Education, or consent. General principles of administration; organization of staff administrative procedures. Study of enabling laws, legal responsibilities, surveys, finance, programs, facilities, and public relations. Mr. Scherlacher

294. Recreation Leadership in Groups. II, S. 2 hr. PR: 5 hr. general and educational psychology, or at least one year of leadership experience with teen-age children, or consent. For those working in voluntary agencies such as Y.M.C.A., Boy Scouts, Girl Scouts, etc. Also for those responsible for special-interest groups in extracurricular activities. Mr. Scherlacher

295. Leadership in Nature Recreation. II, S. 2 hr. PR: 5 hr. in biology, botany, or zoology, or combination; Rec. 1, 3, or equiv., and at least one year of leadership experience with teen-age children. For recreation leaders, camp counselors, and teachers who work with school-age children in camps or in special-interest groups. Mr. Scherlacher

296. American Folk Dance. I, S. 3 hr. PR: Phys Educ. 132 or equiv. Study of American Square, contra, circle, and round dances and play party games, and their place in community and school recreation programs. Their origin

and relationship to the arts and other aspects of American culture. Analysis of techniques in leading and calling. Mr. Scherlacher

305. Human Interest Areas in Recreation Planning. I, II, S. 3 hr. PR: Rec. 202 or 20 hr. in Education or equiv. Exploration of the human interest areas which are the sources of recreation program content. Their adaptation to school and municipal recreation program planning.
Mr. Scherlacher and Visiting Instructors

306. Leadership in School-Age Recreation Programs. II, S. 2 hr. PR: Rec. 107 or two years' teaching experience. Leadership techniques used in various recreation activities of school-age groups. Analysis of differences between teaching and recreation leadership. Mr. Hutchison

307. Community Recreation. I, S. 3 hr. PR: Rec. 202 or consent. A study of problems related to the provision of adequate recreation service for a community. Standards and quality of recreation service; methods of measuring existing services and their coordination; and community organization procedures. Course is designed for leaders in voluntary agencies, schools, churches, and municipal recreation organizations.
Mr. Scherlacher and Visiting Instructors

394. Seminar in Recreation. I, II, S. 4 hr. PR: Rec. 202. An overview and critical analysis of the literature and research in recreation. Mr. Scherlacher

397. Individual Research Problems in Recreation. I, II, S. 1-4 hr. PR: Rec. 202, HPERS 375 or 395, or Educ. 301. Opportunity for independent study and investigation of pertinent problems. For advanced students with practical experience. Mr. Scherlacher

398. Practicum in Recreation. I, II, S. 4 hr. PR: Rec. 394, HPERS 396 and 397. Program planning, curriculum development, and job functions in recreation. Mr. Scherlacher

SAFETY EDUCATION

127. Accident Prevention and First Aid. I, S. 2 hr. Standard and advanced first aid as outlined by the American Red Cross. Miss Hurst

181. Principles of Safety Education. I. 2 hr. An introductory course. Basic principles of safety education and accident prevention. Deals with the development of the safety movement and its place in education. Mr. Maurice

182. Techniques and Procedures in Driver and Traffic Safety Education. II, S. 3 hr. PR: Safety Educ. 181 or equiv., or 6 hr. of Education and valid driver's license. A basic course designed to prepare teachers of driver education; includes supervised practice-driving-instruction (laboratory arranged).
Mr. Maurice

280. Programs in Safety Education. I, II, S. 3 hr. PR: Consent. Planning programs, methods and materials for offering instructional programs in safe living in school, home, travel, industry, physical education, athletics, and recreation. Mr. Yost

281. Driver and Traffic Safety Education Programs. II, S. 3 hr. PR: Safety Educ. 280 or equiv., or 20 hr. of Education. Philosophy, objectives, new and advanced equipment, methods and materials in driver and traffic safety education; program planning, and evaluative techniques in schools and adult programs. Includes laboratory with various methods, materials, and instructional techniques. Mr. Maurice

282. Problems in Driver and Traffic Safety Education. I, II, S. PR: Safety Educ. 281 or equiv. or teaching experience in driver education. An advanced course which gives consideration to individual problems encountered in

teaching driver and traffic safety education. Examination of existing courses of study, research and supervisory and evaluative practices. Mr. Maurice

283. Philosophy of Safety Education. I, II, S. 3 hr. PR: Safety Educ. 280, 281, or 20 hr. of Education. Study of the place of safety education in modern living; philosophies of safety education as expounded by leaders in the field; emphasis on accident causation and accident prevention in various areas of safety; and research implications. Mr. Yost

365. Organization, Administration, and Supervision of School Safety Education. I, II, S. 3 hr. PR: 20 hr. of Education or Safety Educ. 280 or 283 or equiv., and consent. Designed for teachers, school administrators, college instructors, and others responsible for directing or supervising safety programs in the school. Deals with the problems, policies, practices, and procedures involved in the organization, administration, and supervision of a comprehensive accident prevention and safety education program for the school. Considers integration factors of the school safety program with the community safety program. Mr. Yost

394. Seminar in Safety Education. I, II, S. 4 hr. PR: Safety Educ. 283. An overview and critical analysis of the literature and research in safety education. Mr. Yost

397. Individual Research Problems in Safety Education. I, II, S. 1-4 hr. PR: Safety Educ. 283, HPERS 375 or 395, or Educ. 301. Opportunity for independent study and investigation of pertinent problems. For advanced students with practical experience. Mr. Yost

398. Practicum in Safety Education. I, II, S. 4 hr. PR: Safety Educ. 394, and HPERS 396 and 397. Program planning, curriculum development, and job functions in safety education. Mr. Yost

HPERS

HPERS courses involve all areas — Health Education, Physical Education, Recreation, and Safety Education.

200. Workshop. 1-6 hr.

I. Health Education

II. Physical Education

III. Recreation

IV. Safety Education Staff

201. Seminar of Foreign Programs in Health, Physical Education, Recreation and Safety. S. 2-6 hr. PR: Consent. Study of health, physical education, recreation, athletics, and safety programs as they exist in the countries visited will be made in terms of philosophy, program content, facilities, administration. This course is designed for administrators and teachers. Staff

301. The Role of the School Administrator in Conducting Programs in Health, Physical Education, Recreation, and Safety. S. 2 hr. PR: 20 hr. in Education. A seminar for school administrators on the solution of problems associated with planning, scheduling and conducting school programs in health, physical education, recreation, and safety. Consideration is given to program, activity, leadership, facilities, supplies, equipment, finances, and supervision. (Not open to major students.)
Miss Carruth, Messrs. Duncan, Holter, and Scherlacher

350. Measurement in Health, Physical Education and Safety. II, S. 3 hr. PR: Health Educ. 205 or Phys. Educ. 294 or Safety Educ. 283. An analysis of the construction and use of typical tests in Health Education, Physical Education, and Safety Education with basic statistical interpretations. Mr. Holter

352. Statistical Analysis in Health, Physical Education, Recreation, and Safety. II, S. 3 hr. PR: HPERS 350. A critical statistical analysis of measurement and evaluation in Health, Physical Education, Recreation, and Safety Education programming and research. Mr. Holter

355. Problems in Health, Physical Education, Recreation, and Safety. I, S. 3 hr. PR: Health Educ. 205 or Phys. Educ. 294 or Rec. 202 or Safety Educ. 283. Content and relationships among physical education, health education, recreation, and safety programs. Aims to develop critical analysis. Follows seminar procedure and presupposes broad academic experience on part of the student. Mr. Holter

375. Introduction to Research. II, S. 3 hr. PR: Health Educ. 205 or Phys. Educ. 294 or Rec. 202 or Safety Educ. 283. An analysis of the nature and purpose of research with an emphasis upon types and techniques applicable to the areas of health, physical education, recreation, and safety. (Required of all Master of Science degree candidates.) Mr. Holter

395. Research Seminar. II, S. 3 hr. PR: Health Educ. 394 or Phys. Educ. 394 or Rec. 394 or Safety Educ. 394 and HPERS 375 or Educ. 301. Analysis of research design, compilation, organization, treatment and interpretation of data for research projects in health, physical education, recreation and safety. (Required of all candidates for the Doctoral Degree.) Mr. Holter

396. Administration Policies. I, II, S. 3 hr. PR: Health Educ. 394 or Phys. Educ. 394 or Rec. 394 or Safety Educ. 394, and Educ. 339 or Educ. 340. A study and evaluation of administrative policies and practices in health education, physical education, recreation, safety education, and athletics. Mr. Duncan

397. Supervision. I, II, S. 3 hr. PR: HPERS 396 and Educ. 336 or Educ. 335 or Educ. 341. Mr. Duncan

399. Thesis. I, II, S. 6 hr. PR: HPERS 375 or 395. Staff

THE STAFF

Part IV

The first date following titles indicates the most recent appointment. The second date indicates year of first appointment to a University position. Staff members whose names are followed by an asterisk (*) are employed in cooperation with the United States Department of Agriculture.

Eileen Leanora Abdoney, B.S., *Senior Medical Technician* (1960).
Kazuo Abe, M.D., *Resident in Pathology* (1962).
Marguerite E. Abel, B.A., B.S.L.S., *Reference Librarian* (part-time), *Medical Center Library* (1960).
Richard Atkins Ackerman, B.S., M.S., *Assistant Professor of Dairy Science; Assistant Dairy Scientist, Agricultural Experiment Station* (1946), 1928.
John Davis Adams, B.S., D.D.S., *Professor and Chairman of Crown and Bridge Dentistry* (1958).
Robert Evans Adams, B.S., Ph.D., *Associate Professor of Plant Pathology; Associate Plant Pathologist, Agricultural Experiment Station* (1960), 1953.
Margaret Joralemon Albrink, B.A., M.S., M.D., M.P.H., *Associate Professor of Medicine* (1961).
Wilhelm Stockman Albrink, B.A., Ph.D., M.D., *Professor and Chairman of Pathology* (1961).
Lillian Frances Alfred, B.S., M.S., *Instructor in Chemistry* (1961).
Howard Bushnell Allen, B.S., M.S., Ph.D., *Professor of Education* (1932), 1920.
Patsy Ruth Allison, B.S., M.S.Ed., *Assistant Dean of Women* (1960). (Resigned July 31, 1962).
Lydia Andre Altmare, R.N., *Head Nurse, Station* 83, *University Hospital* (1961), 1960.
Vance Quentin Alvis, B.S., M.A., Ph.D., *Professor of Economics* (1960), 1956.
Nelle Perrel Ammons, A.B., M.A., Ph.D., *Professor Emeritus of Botany* (1959), 1920.
Harold Irvin Amory, M.D., *Professor and Chairman of Radiology* (1960).
Gerald Clifton Anderson, B.S., M.S., Ph.D., *Professor of Animal and Veterinary Science; Animal Husbandman, Agricultural Experiment Station* (1960), 1950. (On leave of absence Sept. 7, 1962–April 15, 1963).
James Treat Anderson, B.S.M.E., M.S.M.E., D.I.C., Ph.D., *Professor and Chairman of Mechanical Engineering* (1960).
Roland Carl Anderson, B.A.N.E., M.S., *Instructor in Aero-Space Engineering* (1962).
William Evan Anderson, A.B., M.D., *Assistant Professor of Medicine* (1961), 1960.
Charles Edward Andrews, M.D., *Associate Professor of Medicine* (1960).
Evangelos K. Apostolou, M.D., *Resident in Medicine* (1962).
Chester Abbo Arents, B.S.E.E,. M.S.M.E., M.E., *Dean, College of Engineering* (1955).
Walter Wardlaw Armentrout, B.S.Agr., M.S., Ph.D., *Professor of Agricultural Economics and Rural Sociology; Agricultural Economist, Agricultural Experiment Station* (1936), 1924.
Barbara Armstrong, B.S., M.S., *Instructor in Home Economics* (1962).
Charles Dale Armstrong, A.B., M.A., *Instructor* (part-time) *in Mathematics, Parkersburg Branch* (1961).
William Henry Armstrong, B.S., M.S., *Associate Professor of Industrial Engineering* (retired), (1962), 1957. (Retired May 31, 1962).
Mary Rogers Ashburn, A.B. M.A., *Instructor in English* (1959), 1946.
Thelma G. Atkeson, B.A., M.S.S.W., *Director, Social Work Department, University Hospital* (1962), 1961.
Paul Alexander Atkins, B.S.J., M.A., *Associate Professor of Journalism; Faculty Adviser, Daily Athenaeum* (1961), 1953.
Jo Mather Aull, *Instructor* (part-time) *in Art* (1945).
Andrew Kolb Ault, B.S., M.Ed., *Instructor in Education* (1961), 1952.
Gladys Raber Ayersman, B.S.H.E., M.S., *Assistant Professor of Home Economics* (1954), 1943.

Raphael Otto Bachmann, B.S., Ph.D., *Dean, School of Pharmacy; Professor of Pharmaceutical Chemistry* (1961).
Charles Henry Baer, B.S., M.Sc., Ph.D., *Assistant Professor of Biology* (1961), 1948.
Wesley Marvin Bagby, A.B., M.A., Ph.D., *Associate Professor and Acting Chairman of History* (1962), 1956.
Benjamin Hasting Bailey, A.B., M.Ed., Ed.D., *Associate Professor of Education* (1962), 1959.
Helen L. Baisden, A.B., *Instructor in Home Economics* (1962), 1961.
Charles William Baker, B.S.Ed., M.A., *Instructor* (part-time) *in Education* (1962).
Wilfred Harmon Baker, B.S.C.E., M.S.C.E., *Professor of Civil Engineering* (1955), 1941.
Robert Dodge Baldwin, A.B., A.M., Ph.D., *Professor Emeritus of Education; Executive Secretary, West Virginia School Boards Association* (1962), 1931.
Ralph Owen Ballentine, B.S., *Assistant Superintendent of Maintenance, Physical Plant* (1962).
David Franklin Barbe, B.S.E.E., *Instructor* (part-time) *in Electrical Engineering* (1962).
Edwin Clyde Barbe, B.S.E.E., M.S.E.E., *Assistant Professor of Electrical Engineering* (1959), 1956.
Janis Kay Barber, *Research Technician, Animal and Veterinary Science* (1962).
Richard Hall Barnard, B.S.Ch.E., M.S.Ch.E., Ph.D., *Assistant Professor of Mathematics, Parkersburg Branch* (1961), 1957.
Alice Elizabeth Barnett, B.S., M.S., *Instructor in Biology* (1960), 1959.
Horace Leslie Barnett, A.B., M.S., Ph.D., *Professor of Mycology; Chairman of Plant Pathology, Bacteriology, and Entomology; Mycologist, Agricultural Experiment Station* (1960), 1945.
William Lee Barnett, B.A., M.A., *Instructor in Speech; Assistant Debate Coach* (1961).
W. Quentin Barnette, B.S., M.A., *Assistant Professor of Physical Education; Freshman Basketball Coach* (1958), 1950.
William Derrick Barns, A.B., M.A., Ph.D., *Associate Professor of History* (1954), 1940.
Alfred Lowell Barr, B.S.Agr., M.S.Agr., Ph.D., *Associate Professor of Agricultural Economics and Rural Sociology; Associate Agricultural Economist* (1961).
Edgar Overton Barrett, A.B., *Publicity Director, Intercollegiate Athletics* (1956), 1951.
Karl Melvin Barth, B.S., M.A., *Assistant in Agricultural Biochemistry, Agricultural Experiment Station* (1958). (Resigned February 1, 1962).
Elizabeth Ann Bartholomew, A.B., M.S., *Herbarium Assistant and Clerk in Biology* (1941), 1938.
Mildred Mitchell Bateman, B.S., M.D., *Lecturer* (part-time) *in Social Work* (1957).
Alice Lee Bauer, A.B., B.S.L.S., *Chief Technical Processes Librarian* (1954).
Newton Moore Baughman, B.S., M.S., Ph.D., *Professor of Agronomy; Agronomist, Agricultural Experiment Station* (1960), 1949.
Mary Catherine Bayles, A.B., A.M., *Assistant Registrar* (1962), 1924.
Lois Jean Beal, R.N., *Head Nurse, Intensive Care Unit, University Hospital* (1962), 1961.
Michael Joseph Beauchemin, Ed.B., M.A., *Instructor in Romance Languages* (1956).
John Francis Bell, B.S.F., *Associate Forester* (part-time), *Agricultural Experiment Station* (1960), 1953.
Laddie Reed Bell, B.A., M.A., D.Ed., *Associate Professor of Education* (1962).
Waldo E. Bell,* B.S.Agr.Eng., *State Extension Agricultural Engineering Specialist, Cooperative Extension Service* (1945).
Donald Lee Bellia, B.S.A.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962).
Glenn D. Bengtson, B.S., *Associate Agricultural Experiment Editor* (1961), 1953.
Carroll G. Bennett, M.S., D.D.S., *Instructor in Pedodontics* (1962).

Charles Edward Bennett, Jr., A.B., D.D.S., *Instructor in Operative Dentistry* (1962).
Herald D. Bennett, Ph.D., *Professor of Biology* (1955), 1948.
Jonathan McCauley Bennett, *Chief Flight Instructor in Aero-Space Engineering* (1951).
Arnold Benson, B.A., M.A., *Instructor in Biology* (1960), 1959.
Dorothy Jean Benson, B.S.H.E., M.S.H.E., *Dietitian, Men's Dining Hall* (1953).
Gordon Alger Bergy, Ph.C., B.S.Pharm., M.S., *Professor Emeritus of Pharmacy* (1960), 1916
Joy Underwood Berkley, B.S.Ed., M.A., *Instructor in English* (1962), 1960.
Joan Berry, R.N., *Head Nurse, University Hospital Emergency Room* (1960).
Howard Phillip Berthy,* B.S.F., *State Extension Forestry Specialist, Cooperative Extension Service* (1953), 1950.
Charity White Beto, A.B., M.S., *Associate Professor of Physical Education* (1957), 1946.
William Robert Biddington, D.D.S., *Professor and Chairman of Endodontics* (1959).
Fred Bierer, *Supervisor of Maintenance, Athletics and Physical Education, Department of Intercollegiate Athletics* (1947).
Robert Lee Birch, B.S., M.S., *Instructor in Biology* (1948).
Victor Edgar Bird, B.S., D.D.S., *Instructor* (part-time) *in Oral Surgery, School of Dentistry* (1959).
Carter Richard Bishop, A.B., M.A., Ph.D., *Professor of English* (1953), 1929.
D. Anne Bjerklie, B.S., *Administrative Technologist, University Hospital Laboratories* (1962).
J. Temple Black, B.S.I.E., *Instructor in Industrial Engineering* (1960).
Duane Frederick Blackwood, B.A., M.A., Ph.D., *Visiting Associate Professor of Psychology* (1962).
Kittie Jean Blakemore, B.S.Ed., M.S., *Instructor in Physical Education* (1960).
Ruth Ann Bletner, B.S., *Medical Technologist, University Hospital Clinical Laboratories* (1942).
Charles William Blissitt, B.S., Ph.D., *Assistant Professor of Pharmacy* (1958).
Ruth Naomi Blodgett, A.B., B.S.L.S., *Documents Librarian* (1951), 1932.
Byron M. Bloor, B.S., M.D., *Professor of Surgery; Chairman of Neurosurgery* (1962), 1960.
Don Houston Blount, A.B., M.A., Ph.D., *Assistant Professor of Physiology* (1961).
Dean Edward Bluman, B.A., B.S.M.E., M.S., *Instructor in Mechanical Engineering* (1962).
Sallie Shrewsbury Board, A.B., A.M., *Instructor in English* (1945).
Lorise Caroline Boger, B.A., M.S., *Senior Reference Librarian* (1959), 1957.
William Franklin Boggess, A.B., *Assistant Professor of Ancient and Classical Languages* (1962).
Earl Ruffner Boggs, A.B., M.A., Ph.D., Pe.D., *Dean, College of Education; Professor of Education* (1960).
Evelyn Lazenby Bonar, A.B., M.A., *Instructor in English* (1958).
Samuel George Bonasso, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1962).
Donovan Hiner Bond, B.S.J., M.A., *Director of Development; Professor of Journalism* (1960), 1946.
Gladys Violet Bond, R.N., *Nurse in Oral Surgery, School of Dentistry* (1959).
Hubert Barclay Bondurant, A.B., M.A., *Instructor in English* (1962).
Barbara June Bonfili, B.S., *Junior Catalogue Librarian* (1961).
Lois Jane Bonnesen, R.N., *Head Nurse in Psychiatry* (1962), 1960.
William Alfred Bonsall, B.S., M.S., *Assistant Professor of Physical Education; Gymnastics Coach* (1958), 1950.
George Paul Boomsliter, M.S.C.E., *Professor Emeritus of Mechanics* (1949), 1920.
Kenneth Ray Boord,* *State Extension News Editor, Cooperative Extension Service* (retired), (1953), 1943. (Retired November 1, 1962).
Winifred Marie Booth, B.S., M.A., *Assistant to the Dean and Lecturer in Education* (1948), 1930.

Francis Thomas Borkowski, B.S., M.M., *Assistant Professor of Music; Director of Bands* (1962), 1961.

Jennie Delawder Boughner, A.B., *Extension Assistant* (retired) *Library* (1958), 1915.

Herman M. Bowers,* B.S.Agr., *Assistant Director of Cooperative Extension Service* (1951), 1929.

Karl Douglas Bowers, Jr., M.D., *Resident in Surgery, First Year* (1962).

Joanne Walker Bowie,* A.B., *State Extension 4-H and Home Economics Editor, Cooperative Extension Service* (1959).

Betty Boyd, A.B., *Dean of Women* (1955), 1948.

Sam Boyd, Jr., B.F.A., M.F.A., *Professor of Speech; Director of Drama; University Marshal* (1959), 1943.

Charles Chester Boyer, B.S., M.A., Ph.D., *Associate Professor of Gross and Neurological Anatomy* (1957). (Resigned August 31, 1962).

Fred E. Boyers, B.S., D.D.S., *Assistant Professor of Prosthodontics I* (1957).

Harold Henry Boyers, D.D.S., *Assistant Professor of Operative Dentistry and Oral Anatomy* (1958).

William Robert Boyle, B.S., M.S.N.E., *Instructor in Chemical Engineering; Research Engineer, Engineering Experiment Station* (1962), 1960.

Charles Burton Boyles, B.S., M.S., *Instructor in Animal Science and Superintendent of Animal Husbandry Farm, Agricultural Experiment Station* (1959), 1954.

W. Newman Bradshaw, B.A., M.A., Ph.D., *Assistant Professor of Biology* (1962).

Allan James Braff, A.B., M.B.A., Ph.D., *Assistant Professor of Economics* (1959).

Mildred Peters Brain, A.B., M.A.L.S., *Chief Audio-Visual Aids Librarian* (1958).

James Paul Brawner, A.B., A.M., Ph.D., *Professor and Chairman of English* (1952), 1935.

Thomas John Brennan, B.S.Ed., M.A.Ed., Ed.D., *Professor of Education and Coordinator of Industrial Education* (1962), 1941.

Anna Brochick, A.B., M.A., *Instructor in Education; Teacher, University High School* (1938).

Sara Elizabeth Brock, B.S., M.S., *Instructor in Education* (1961).

Maurice Graham Brooks, A.B., M.S., *Professor of Wildlife Management; Forester, Agricultural Experiment Station* (1947), 1923.

Clifford Woodrow Brown, B.S., M.F.A., *Professor of Music and Chairman of Music Education* (1962), 1942.

Emmett Francis Brown, B.S., D.D.S., *Assistant Professor of Oral Diagnosis and Practice Administration, School of Dentistry* (1962), 1960.

George Samuel Brown, A.B., M.S., *Coordinator of Rehabilitation Counseling* (1960).

James Harold Brown, B.S., M.F., *Assistant Professor of Silviculture; Assistant Silviculturist, Agricultural Experiment Station* (1961), 1957.

John Ellison Brown, *Senior Clerk, Purchasing and Inventory, Comptroller's Office* (1961).

Londo Henderson Brown, A.B., LL.B., LL.M., *Professor of Law, Consultant to Comptroller's Office* (1961), 1950.

Robert Nathan Brown, A.B., *Director of Intercollegiate Athletics; Assistant Professor of Physical Education* (1954), 1950.

Sara Ann Brown, B.S., M.S., Ph.D., *Professor of Home Economics Education* (1955), 1946.

Theodore Lucein Browne, B.S., *Research Assistant in Surgery* (1961), 1957.

Joyce L. Broyles, *Teacher* (part-time) *University High School* (1959). (Resigned June 1, 1962).

Randall Lee Broyles, B.S., M.A.Ed., *Instructor in Education; Teacher, University High School* (1958). (Resigned September 1, 1962).

Kenneth Pierpont Brundage,* B.S., M.S., *Extension Farm Management Specialist, Cooperative Extension Service* (1954).

Allen Roy Bryant, B.S., M.S., *Instructor in Education; Teacher, University High School* (1956).

Arthur Charles Buck, B.A., M.A., *Instructor* (part-time) *in English; Sergeant Major in Air Science* (1962), 1961.

Todd H. Bullard, B.A., M.A., *Resident Director, Parkersburg Branch; Assistant Professor of Political Science* (1961), 1956.

Jerry Cameron Burchinal, B.S.C.E., M.S.C.E., *Professor of Civil Engineering* (1962), 1946.

Arthur Edgar Burford, A.B., M.S., Ph.D., *Assistant Professor of Geology* (1960).

Othmar Joseph Burger, B.S., M.S., Ph.D., *Assistant Dean, College of Agriculture, Forestry, and Home Economics; Director of Resident Instruction, Division of Agriculture* (1959), 1950.

William T. Burke, Jr., B.A., Ph.D., *Associate Professor of Biochemistry* (1960).

Robert G. Burrell, B.S., M.S., Ph.D., *Assistant Professor of Microbiology* (1961).

Barbara Shields Burrows, B.A., M.Ed., *Junior Acquisitions Librarian* (part-time), *Medical Center Library* (1962), 1959.

Robert Barker Burrows, A.B., M.A., *Associate Professor of Speech; Director of Radio-Television Area, Speech* (1948).

Mary Catherine Buswell, B.A., M.A., *Assistant Professor of English* (1960), 1947.

Roy Lovell Butcher, B.S., M.S., Ph.D., *Instructor in Obstetrics and Gynecology* (1962).

Russell Clarke Butler, B.S.Agr., M.S., Ph.D., *Professor and Chairman of Agricultural Education; Professor of Education* (1956), 1944.

George William Butz, Jr., B.S., M.D., *Resident in Radiology, Third Year* (1962), 1961.

Edward Ford Byars, B.M.E., M.C.E., Ph.D., *Professor and Chairman of Theoretical and Applied Mechanics* (1960).

Sherman Loar Cale, *Maintenance Manager, Evansdale Campus* (1960).

Janet Duffield Callahan, B.S., *Teacher and Librarian, University High School* (1960).

Jerome Preston Callegari, Jr., B.S., *Medical Technologist, University Hospital Clinical Laboratories* (1962).

George G. Campbell, B.S.E.M., M.S.E.M., *Petroleum Research Engineer, Engineering Experiment Station* (1956).

John Lloyd Campbell, M.S., D.D.S., *Professor and Chairman of Oral Surgery* (1960).

Thomas Corwith Campbell, Jr., A.B., M.A., Ph.D., *Professor of Economics and Acting Dean, College of Commerce* (1961), 1948.

William James Canady, B.S., M.S., Ph.D., *Associate Professor of Biochemistry* (1962), 1958.

Albert G. Canaris, Ph.D., *Associate Professor of Zoology,* (Assigned to Egerton College, Kenya, East Africa, through contract with West Virginia University), (1962).

George Eugene Cannon, B.A., M.A., *Psychometrist, University Counseling Center* (1961), 1960. (Resigned August 31, 1962).

Odilie Cantillano y Vives, B.A., M.A., *Instructor in Spanish* (1959).

Helen Jean Capp, R.N., *Supervisor, Psychiatric and Metabolic Nursing* (1961).

Leo Carlin, A.B., LL.B., *Professor Emeritus of Law* (1955), 1916.

Lorna Doone Carlin, A.B., M.S., *Instructor in Mathematics* (1955), 1943.

William T. Carlson, B.S., M.S., *Instructor in Agronomy; Assistant in Agronomy, Agricultural Experiment Station* (1959). (Resigned October 5, 1962).

James Franklin Carruth, B.S., M.S., Ph.D., *Associate Professor of Psychology; Chief of Student Counseling Service* (1957), 1953.

Wincie Ann Carruth, B.S., M.S., Ph.D., *Professor and Chairman of Women's Physical Education Department* (1957).

Roy George Carter, A.I.M.L.T., *Chief Medical Technologist in Hematology and Blood Bank, Clinical Laboratories, Medical Center* (1961). (Resigned March 18, 1962).

Maria Hilliard Cartledge, A.B., *Research Assistant in Agronomy and Genetics* (1954), 1952.

John Anthony Caruso, A.B., M.A., Ph.D., *Professor of History* (1961), 1950.

Michael A. Caruso, B.S., M.A., *Instructor in Education; Teacher, University High School* (1956).

Kenneth Llewellyn Carvell, B.A., M.F., D.For., *Associate Professor of Silviculture; Associate Silviculturist, Agricultural Experiment Station* (1956), 1953.

Robert Harry Case, S/Sgt., B.S., *Instructor and Librarian, U. S. Army ROTC Library* (1962), 1961.
Reba White Castillos, A.B., A.M., *Instructor in Spanish, University Extension Division* (1960).
Walter E. Castro, B.S.M.E., M.S.M.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962).
Carl Henry Cather, B.S.M.E., M.S.M.E., *Professor of Theoretical and Applied Mechanics* (1960), 1916.
Harold Malcolm Cather, B.S.M.E., M.S.M.E., M.E., *Professor of Mechanical Engineering; Mechanical Engineer, Engineering Experiment Station* (1960), 1919.
Jack Duane Cawthon, B.A., *Lecturer* (part-time) *in Journalism* (1962).
Earl Archie Cecil, B.S., M.B.A., *Instructor in Economics* (1962).
Charles Richard Chamberlain, B.A., M.D., *Instructor in Pathology* (1961).
William Orel Champney, B.S., M.S., *Assistant Professor of Agricultural Economics; Assistant Agricultural Economist, Agricultural Experiment Station* (1958). (Resigned September 1, 1962).
Tong Hyun Chang, M.D., *Resident, Third Year* (1962).
Roger Vernon Chastain, D.D.S., *Assistant Professor of Operative Dentistry* (1960).
Shih-Chieh Chen, B.S., M.S., *Assistant in Agricultural Biochemistry* (1960), 1959.
Mary Stare Chico, R.N., *Chief Relief and Night Nursing Supervisor* (1960).
William Henry Childs, B.S., M.S., Ph.D., *Professor of Horticulture; Horticulturist, Agricultural Experiment Station* (1953), 1931.
Carroll Stanley Chipps, *Food Service Manager, Dietetic Department, University Hospital* (1961).
Oliver Perry Chitwood, Ph.D., LL.D., Litt.D., *Professor Emeritus of History* (1946), 1907.
Young Kil Choi, M.D., *Resident in Medicine* (1962).
Ned Jay Christensen, B.A., M.A., Ph.D., *Assistant Professor of Speech* (1960), 1959. (Resigned July 1, 1962).
Sally Caroline Church, B.S., *Medical Technologist, Clinical Laboratories, University Hospital* (1962).
Burr Clark, Jr., B.S. M.S., *Instructor in Agricultural Biochemistry; Assistant in Agricultural Biochemistry, Agricultural Experiment Station* (1962), 1960.
Mary Dorcas Clark, A.B., M.D., *Physician, University Health Service* (1961).
Rhoda Mildred Clark, A.B., M.S., M.A.L.S., *Senior Catalogue Librarian* (part-time), *Library* (1961), 1954.
Thomas Baird Clark, B.S.A., M.S., *Professor Emeritus of Poultry Science; Poultry Husbandman Emeritus, Agricultural Experiment Station* (1959), 1927.
James Harris Clarke, B.S.Agr., M.S.Agr., *Professor of Agricultural Economics; Agricultural Economist, Agricultural Experiment Station* (1960), 1939.
John Donald Clarkson, B.F.A., M.A., *Professor and Chairman of Art* (1961), 1948.
Roy Burdette Clarkson, B.S., A.B., Ph.D., *Assistant Professor of Biology* (1960), 1956.
Jesse Franklin Clovis, B.S.F., M.S., Ph.D., *Associate Professor of Biology* (1962), 1957.
Vivian B. Cobun, B.S., *Assistant to the Comptroller* (1961), 1935.
Charles Nelson Cochran, A.B., M.S., *Assistant Professor of Mathematics* (1957), 1951.
Billy Lee Coffindaffer,* B.S., M.S., Ph.D., *State Extension 4-H Programs Leader, Cooperative Extension Service* (1956), 1950.
Charles Richard Coffman, B.S., *Superintendent, Agronomy Farm* (1957).
Marilyn Helen Coffron, B.A., M.A., *Instructor in English* (1961).
David Dale Cole, B.S., M.A., *Instructor in Psychology* (1960), 1958.
George Henry Colebank, A.B., M.A., *Associate Professor Emeritus of Education* (1950), 1928.
Linda June Coleman, B.S., *Medical Technologist, University Hospital* (1962).
Raymond W. Coleman, B.B.A., M.B.A., Ph.D., *Professor of Economics and Management* (1962), 1948.
Robert Eugene Coley, B.A., M.A., *Instructor in English* (1959).

ARMAND RENE COLLETT, A.B., PH.D., *Professor of Chemistry* (1939), 1924.
CLIFFORD WARTHEN COLLIER, JR.,* B.F.A., M.L.A., *State Extension Landscape Architect, Cooperative Extension Service* (1960).
EDMOND BYRL COLLINS, B.S.AG.E., M.S.AG.E., *Assistant Professor of Agricultural Engineering; Assistant Agricultural Engineer, Agricultural Experiment Station* (1962), 1960.
HENRY D'ALTON COLLINS, B.S., LL.B., LL.M., J.S.D., *Professor of Law* (1956), 1950.
CLYDE LEMUEL COLSON, A.B., LL.B., S.J.D., *Dean, College of Law* (1956), 1935.
PHILIP EDMUND COMER, A.B., M.S., *Psychometrist, Student Counseling Service* (1962), 1961.
FRANK GIRARD COMERFORD, C.E., *Coordinator for Basic Refresher Engineering Courses in Charleston, W. Va., University Extension Division* (1953).
DONALD R. COMLEY, D.D.S., *Instructor in Oral Surgery, School of Dentistry* (1961).
RAPHAEL JOSEPH CONDRY, B.S., M.D., *Associate Professor of Medicine* (1961). (Resigned February 28, 1962).
WILLIAM HOWARD CONKLE,* B.S., M.S., PH.D., *State Extension Horticultural Specialist, Cooperative Extension Service* (1959), 1941.
REX BOLAND CONN, JR., B.S., M.D., B.SC., M.S., *Associate Professor of Pathology; Director of Clinical Laboratories, University Hospital* (1962), 1960.
ROBERT HARRY CONN, A.B., *Instructor in Romance Languages* (1962).
VICTORIA SELLENS CONN, R.N., B.A., M.N., M.A., *Research Associate Professor of Nursing* (1961).
JERALD LEONARD CONNELLY, B.S., PH.D., *Assistant Professor of Biochemistry* (1961).
CHARLES CARUTHERS COOK, B.S.M.E., M.S.I.E., *Assistant Professor of Industrial Engineering* (1960), 1957.
KERMIT ALDERSON COOK, A.B., M.A., PH.D., *Professor of Secondary Education* (1959), 1935.
RUTH ELIZABETH COOK, B.S.H.E., M.S.H.E., *Instructor in Education* (1951).
BRENT ALDEN COOL, CAPT., A.B., B.S., *Assistant Professor of Air Science* (1962).
MELVIN GERALD COOPER, CAPT., M.A., LL.B., *Assistant Professor of Air Science* (1959)
JEAN MCQUISTON COOVER, A.B., M.A., *Instructor in Mathematics* (1956), 1943.
MULLEN OGLE COOVER, A.B., M.S., *Instructor in Biology* (1961), 1950.
WALTER LEE COPLIN, B.M., M.M., *Assistant Professor of Music* (1952), 1947.
ROBERT G. CORBETT, B.S., M.S., *Assistant Professor of Geology* (1962).
ALFRED CLINTON CORE, B.S., M.S., PH.D., *Assistant Professor of Pharmaceutical Chemistry* (1961), 1960.
EARL LEMLEY CORE, A.B., M.A., PH.D., D.SC., *Professor and Chairman of Biology* (1948), 1928.
MICHAEL JOSEPH CORRADO, B.S., *Instructor in Physical Education* (1962).
JOHN REGIS CORRIVEAU, A.A.S., B.S., *Teacher* (part-time), *University High School* (1962).
RUTH CORSON, B.A., M.A., *Instructor in English* (1962).
BEVERLY CLAIRE CORTES, A.B., M.A., *Instructor in Speech* (1961).
MANUELA CORTES, M.D., *Resident in Obstetrics and Gynecology* (1962).
EARL EUGENE CORUM, B.S., M.S., *Head Football Coach* (1960), 1950.
JOYCE MARGARET COWIN, B.M., *Instructor in Music* (1961). (Resigned July 20, 1962).
RUSSELL JOSEPH CRANE, B.S.ED., M.S.ED., *Assistant Football Coach* (1952).
RACHEL ZINN CRAYCRAFT, B.S., *Staff Pharmacist, University Hospital Pharmacy* (1961). (Resigned May 4, 1962).
COLIN MISKIMMIN CRAYTHORNE, M.D., *Resident, First Year* (1962).
N. W. B. CRAYTHORNE, M.B., B.CH., *Associate Professor and Chairman of Anesthesiology* (1962), 1961.
DAVID RAYMOND CREEL,* *Photographer, Agricultural Experiment Station and Cooperative Extension Service* (1947).
JOHN REGINALD CRESSWELL, B.A., PH.D., *Professor of Philosophy* (1949), 1929.
JOHN ROWE CRESSWELL, F.I.M.L.T., *Head Technologist, Clinical Bacteriology, University Hospital* (1961).
HOWARD O. CROASMUN, B.S., *Financial Secretary, Comptroller's Office; Teaching Assistant, College of Commerce* (1956).

Stephen Fuller Crocker, A.B., M.A., *Professor of English; Chairman of Integrated Studies* (1948), 1931.
William Edward Crockett, B.S.Ch.E., M.S.Ch.E., Ph.D., *Assistant Professor of Electrical Engineering* (1961), 1956. (Resigned May 31, 1962).
Edwin William Crooks, Jr., B.S., M.A., M.B.A., D.B.A., *Associate Professor of Marketing; Assistant Dean, College of Commerce* (1961), 1954.
Orrin Hartshorn Cross, A.B., M.S., Ph.D., *Associate Professor of Psychology* (1957), 1951.
George Edward Cullen, Jr., Capt., USAF, A.A., B.S.J., *Assistant Professor of Air Science* (1961).
A. B. Cunningham, A.B., M.S., Ph.D., *Professor of Mathematics* (1960), 1946.
Glennis Hudkins Cunningham, A.B., M.A., *Instructor* (part-time) *in Education* (1956).
Gloria Jeanne Cunningham, B.S., *Teacher, University High School* (1958).
Robert Francis Curran, Capt., B.S., *Associate Professor of Military Science* (1960).
Richard Allen Currie, M.D., *Assistant Professor of Surgery* (1961).
Quin Fischer Curtis, A.B., A.M., Ph.D., *Professor of Psychology; Chairman of Philosophy and Psychology* (1949), 1941.
Andrew Jackson Dadisman, B.S.A., M.S., Ph.D., *Professor Emeritus of Economics* (1957), 1914.
Stanley Everett Dadisman, A.B., LL.B., *Professor of Law* (1957).
Kathleen Ingrid Dahle, B.S., *Head Medical Technologist, University Hospital* (1961).
Richard Henry Dana, A.B., M.S., Ph.D., *Associate Professor of Psychology* (1961).
Thomas Dillard Darby, B.S., M.S., Ph.D., *Associate Professor of Pharmacology* (1962).
Merle Evelyn Daugherty, A.B., M.A., *Instructor in English, Parkersburg Branch* (1961).
Donald Davidson, B.S., M.S., D.D.S., *Assistant Professor of Surgery* (1961).
Paul Colwell Davidson, B.A., M.D., *Fellow in Medicine* (1962), 1961.
Carole Ann Davis, B.S., *Medical Dietitian, University Hospital* (1962).
Claude Jefferson Davis, A.B., M.A., Ph.D., *Director, Bureau for Government Research* (1961), 1957.
Hannibal A. Davis, A.B., M.S., Ph.D., *Professor of Mathematics* (1958), 1924.
John Boatman Davis, B.S., D.D.S., *Professor and Chairman of Prosthodontics* (1957).
Leonard McCutchan Davis, A.B., M.A., Ph.D., *Assistant Professor of Speech* (1958), 1949.
Lloyd Moore Davis, A.B., M.A., *Instructor in English* (1959).
Paul Lawrence Davis, A.B., M.S., *Instructor in Mathematics* (1962).
Robert Boatman Davis, A.B., D.D.S., *Instructor in Prosthodontics* (1962).
Roland Parker Davis, S.B., Ph.D., *Dean Emeritus, College of Engineering* (1955), 1911.
Oreta Holbert Dawson, A.B., M.A., *Instructor in English* (1947), 1946.
Samuel Joseph Deal, B.S., M.S., Ph.D., *Assistant Professor of Microbiology* (1960).
Helen Mercado Dean, M.D., *Second-Year Resident in Pediatrics* (1962).
Edna Decker, R.N., B.S., *Head Nurse, Station 81, University Hospital* (1962), 1961.
Robert L. Decker, B.A., M.A., Ph.D., *Associate Professor of Psychology* (1962), 1955.
Charles Leroy Delaney, *Instructor in Industrial Engineering* (1946).
John Henry Dempsey, A.B., D.D.S., *Instructor in Periodontics* (1961), 1960.
Doris Houser Denison, B.S., *Teacher, University High School* (1960).
Carl Dennler, Jr., B.S., M.A., Ph.D., *Assistant Professor of Accounting* (1957).
Paul Carleton Desper, B.A., M.D., *Resident in Medicine* (1962).
Adolfo Rodrigo Diaz-Perez, B.A., M.D., *Clinical Assistant Professor of Pathology* (1962).
Walter Howard Dickerson, B.S.C.E., B.S.Agr.Eng'g., M.S.Agr.Eng'g., *Professor of Agricultural Engineering; Agricultural Engineer, Agricultural Experiment Station* (1957), 1953.
Edmund Charles Dickinson, A.B., J.D., *Professor Emeritus of Law* (1952), 1921.

Patricia A. Diehl, R.N., B.S., *Instructor in Medical-Surgical Nursing* (1961).
Montelle Dietrich, B.S., M.S., *Associate Professor of Home Economics* (1962), 1929.
Francoise Georgette Dionne, B.Sc., *Medical Dietitian, University Hospital* (1962).
Evelyn DiTosto, B.S., M.A., *Instructor* (part-time) *in Education* (1962).
Mary DiTosto, B.S., M.A., *Instructor in Education* (1962), 1961.
John Leslie Dixon, B.S.E.E., B.S.M.E., *Instructor in Mechanical Engineering* (1961).
Nicoleen Nardacci Dodd, B.S., *Instructor in Education; Teacher, University High School* (1961). (Resigned June 1, 1962).
Gideon Stanhope Dodds, B.A., M.A., Ph.D., *Professor Emeritus of Histology and Embryology* (1951), 1918.
Alan Chase Donaldson, B.A., M.S., Ph.D., *Professor of Geology* (1962) 1957.
Charles Gilbert Donaldson, B.S., *Assistant Football Coach; Instructor in Physical Education* (1956).
Phillip Barnard Donley, B.S., Cert.Phys.Therap., *Assistant Athletic Trainer; Instructor in Physical Education* (1960).
Robert Tucker Donley, A.B., LL.B., *Professor of Law* (1947), 1929.
Patrick Andrew Donnally, B.S.I.E., *Instructor in Industrial Engineering* (1960).
Carl Kester Dorsey, A.B., M.S., Ph.D., *Professor of Entomology; Entomologist, Agricultural Experiment Station* (1951), 1947.
Carleton Paul Dorsey,° B.S.Agr., M.S.Agr., *State Extension 4-H Leader Cooperative Extension Service* (1952), 1927.
Catherine McKelvey Dorsey, B.A., M.A., *Instructor in Education; Teacher, University High School* (1948), 1943.
J. Robert Dosier, B.S., M.A., *Instructor in Mathematics* (1959).
Samuel Charles Dotson, Jr., B.S., B.M., M.D., *Physician, University Health Service* (1960).
Vicki Vickers Douglas, B.S., *Counselor to Women* (1962).
David William Dowdell, A.B., A.M., *Instructor in English* (1947), 1946.
Meta Michaelsen Downes, B.A., M.A., *Instructor in French* (1960).
Sheldon C. Downes, B.S., M.S., *Assistant Coordinator, Rehabilitation Counseling* (1962).
Leslie Dozsa, D.V.M., *Associate Professor of Veterinary Science; Associate Veterinarian, Agricultural Experiment Station* (1961), 1957.
Barbara Adeline Drainer, B.A., M.S., Ed.D., *Assistant Professor of Art* (1957), 1952.
Thomas Mitchell Drake, A.B., M.A., *Assistant Professor of Political Science* (1962).
John William Draper, B.A., M.A., Ph.D., *Professor of English* (1929).
Ilona J. Drozd, B.S., *Clinical Research Dietitian, University Hospital* (1962), 1961.
Arno Paul Drucker, B.M., M.M., *Assistant Professor of Music* (1962), 1959.
Ruth Landes Drucker, B.M., M.M., *Instructor* (part-time) *in Music* (1961).
Everette Charles Dubbe, B.S.E.E., *Associate Professor of Electrical Engineering* (1959), 1947.
Robert Bradford Duke, B.A., B.D., M.A., *Psychologist, Medical Center* (1962).
Robert Standish Dunbar, Jr., B.S., M.S., Ph.D., *Professor of Statistics; Statistician, Agricultural Experiment Station* (1960), 1952.
Ray Oscar Duncan, LL.B., A.M., Ed.M., Ed.D., *Dean, School of Physical and Health Education, Recreation, and Safety; Professor of Physical Education* (1952).
Richard Edward Duncan, B.M., M.A., Ph.D., *Dean, School of Music* (1958).
Robert Barclay Dustman, Ph.D., *Dean Emeritus of the Graduate School* (1960), 1924.
Ann Culley Dye, B.S.H.E., *Dietitian, Women's Dining Hall* (1937).
Arthur Pingree Dye, B.S.Agr., M.S., *Associate Professor of Horticulture; Associate Horticulturist, Agricultural Experiment Station* (1962), 1923.
Phyllis Gersbach Dye, B.M., M.M., *Instructor in Music* (1961).
Fredona Ann Eames, B.S.N., M.S.N., *Instructor in Pediatric Nursing* (1962).
George Washington Easley, B.S., M.D., *Clinical Instructor in Surgery* (1961).
Jason Clark Easton, B.A., M.A., Ph.D., *Professor of History* (1938).
Joy Bromberg Easton, B.S., M.S., *Instructor in Mathematics* (1955), 1948.

Jane Lee Echols, A.B., M.A., *Instructor in English* (1961), 1959. (Resigned June 1, 1962).
David Everett Edwards, M.D., *Psychiatrist* (part-time), *University Health Service* (1959).
John Eichenmuller, Jr., A.B., M.S., *Assistant in Plant Pathology, Agricultural Experiment Station* (1958).
Eugene Randall Elkins, A.B., *Senior Research Analyst, Bureau for Government Research* (1961), 1952.
Rose Ann Ellem, A.B., A.M., *Instructor in English, Parkersburg Branch* (1962).
John Carlisle Ellers, B.S., M.S., *Instructor in Chemistry* (1957). (Resigned September 7, 1962).
Edward Sumner Elliott, B.A., M.S., Ph.D., *Associate Professor of Plant Pathology; Associate Plant Pathologist, Agricultural Experiment Station* (1961), 1953.
Kendall Clark Elliott, B.S., M.S.Agr., *Assistant Professor of Agricultural Engineering; Assistant Agricultural Engineer* (1962), 1954.
Joan Marie Ellis, B.A., M.A., *Assistant Curator, West Virginia Collection, Library* (1957).
Richard Neal Ellis, B.S., M.A., *Instructor in Education* (1961).
Helen Steele Ellison, A.B., M.S.S,W.. *Assistant Professor of Social Work* (1958), 1954.
Russell G. Ellyson, B.S.Agr., *Group Leader, Tanganyikan Students, Agricultural Administration* (1962), 1934.
Firooz Emami, M.D., *Staff Physician in Medicine, VA Hospital, Clarksburg, W. Va.* (1962).
Joseph C. Emch,* B.S., M.S., *State Extension Animal Husbandry Specialist, Cooperative Extension Service* (1953), 1947.
Roy Eugene Emerson, B.S., M.S., *Associate Professor of Agricultural Engineering; Associate Agricultural Engineer, Agricultural Experiment Station* (1957), 1940.
Jon Evan Engberg, B.M., M.M., *Instructor in Music* (1959).
Dorothy Catherine Engle, A.B., M.A., *Instructor in Education; Teacher, University High School* (1955).
Freda Barbara Engle, B.S.Nurs.Ed., A.M.Nurs.Ed., *Assistant Professor of Public Health Nursing* (1961).
Clyde Neville English, B.A., M.S.M., D.S.M., A.A.G.O., *Associate Professor of Music* (1953), 1945.
Grace Metzger English, B.A., *Assistant to Director of Residence Halls* (1956).
Thomas Edson Ennis, A.B., M.A., Ph.D., *Professor of History* (1946), 1930.
Homer Clark Evans, B.S., M.S., Ph.D., *Professor and Chairman of Agricultural Economics and Rural Sociology; Agricultural Economist, Agricultural Experiment Station* (1960), 1949.
Philip James Faini, B.M., *Instructor in Music* (1961).
Harold Vincent Fairbanks, B.S., M.S., *Professor of Metallurgical Engineering; Metallurgical Engineer, Engineering Experiment Station* (1955), 1947.
Firouz Farahmand, M.D., *Second-Year Resident in Pediatrics* (1962), 1961.
Stanley Farr, B.S.Ch.E., M.S., *Instructor in Physics* (1953), 1947.
Joseph Leo Fasching,* B.S.J., *State Extension News Editor, Cooperative Extension Service* (1962).
Martha Fleming Fawcett, Stnd.Norm., *Social Director, Woman's Hall North* (1959).
Marja Steadman Fear, M.A., *Associate Professor Emeritus of Speech* (1953), 1920.
Catherine Michele Federoff, R.N., B.S., M.A., *Assistant Professor of Medical-Surgical Nursing* (1962).
Donald Charles Ferguson, B.S., M.S., Ph.D., *Assistant Professor of Psychology; Director, University Counseling Center* (1961).
Orlando Liduvino Fernandez, M.D., *Staff Physician, VA Hospital, Clarksburg, W. Va.* (1962).
Remo Ferrante, B.S., M.A., *Instructor in German* (1960).
Frank Lawson Ferrell, M/Sgt., *Instructor in Military Science* (1959).
Edward Burton Findley, M/Sgt., *Supply Sergeant in Military Science* (1959).
Gordon B. Fink, B.A., M.D., *Assistant Professor of Pathology* (1961).
Reginald Hedges Fink, B.M., M.M., *Assistant Professor of Music* (1962).

Francis P. Fisher, A.B., *Lecturer in Journalism; Secretary-Manager, W. Va. Press Association* (1954).
Mildred Fairfield Fisher, *Administrative Assistant to Vice President, Medical Center* (1959), 1926.
Betty G. Fishman, B.A., M.A., *Lecturer in Economics* (1957), 1948. (On leave of absence September 1, 1962-).
Leo Fishman, B.A., M.A., Ph.D., *Professor of Economics and Finance* (1952), 1947. (On leave of absence September 1, 1962-).
Homer Milton Fizer, B.S., M.S., *Instructor in Education; Teacher, University High School* (1960), 1940.
William W. Fleming, A.B., M.A., Ph.D., *Assistant Professor of Pharmacology* (1960).
Clifton Wharton Flenniken, Jr., B.S., *Director of Physical Plant* (1961).
Edmund Berney Flink, M.B., M.D., Ph.D., *Professor and Chairman of Medicine* (1960).
Mary Frances Fockler, B.S., M.S., *Metabolic Research Dietitian, University Hospital* (1962), 1961.
Joe Edward Ford, A.B., M.A., *Assistant Professor of Speech; Technical Supervisor, University Theatre; Director, W. Va. High School Drama Festival* (1962), 1953.
O. Rex Ford, Ph.D., *Professor of Physics* (1943), 1925.
William Robert Fortney, B.S., M.S., Ph.D., *Associate Professor of Horticulture; Associate Horticulturist, Agricultural Experiment Station* (1960), 1956.
James Hunter Fortune, Jr., B.S., M.S., *Instructor in Mathematics, Parkersburg Branch* (1962).
Ruel Elton Foster, A.B., M.A., Ph.D., *Professor of English* (1957), 1942.
William Lawrence Fourney, B.S.A.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962).
Robert Durant Fowler, B.S.E.E., B.S.I.E., M.S.I.E., *Associate Professor of Industrial Engineering* (1959).
Claud Mahlon Fraleigh, D.D.S., M.S.D., *Professor and Chairman of Periodontics* (1959).
Frederick William Franck, A.B., M.A., *Instructor in Romance Languages* (1960).
Lavina Mary Franck, B.S., M.S., *Associate Professor of Home Economics* (1959), 1957. (Resigned June 1, 1962).
Edith Eloise Franklin, B.A., M.A., *Instructor in English* (1961).
Carl Maynard Frasure, B.A., M.A., Ph.D., *Dean, College of Arts and Sciences; Professor of Political Science* (1961), 1927.
Ben Frank Freedman, B.F.A., M.A., *Assistant Professor of Art* (1962), 1957.
Mary I. Freeland, B.S.H.E., *Medical Dietitian, University Hospital* (1962).
Emile G. Frere, B.S., M.A., Ph.D., *Associate Professor of Romance Languages* (1961), 1947.
Ray Jerome Friant,* B.S., *Extension Agronomist* (retired), *Cooperative Extension Service* (1960), 1922.
Harry Marion Fridley, B.S., M.S., Ph.D., *Professor of Geology* (1943), 1928.
Richard Adam Frisch, B.S., *Instructor in Theoretical and Applied Mechanics* (1960). (Resigned May 31, 1962).
Jack Front, B.S., Cert.Phys.Therap., *Chief Physical Therapist, Medical Center* (1960).
Alderson F. Fry, B.S., M.S.L.S., M.A., LL.B., *Librarian, Medical Center Library* (1954).
Nicholas William Fugo, A.B., M.S., Ph.D., M.D., *Professor and Chairman of Obstetrics and Gynecology* (1960).
Thompson R. Fulton, A.B., A.M., *Professor of Social Work* (1953), 1946.
Jack William Futrell, B.A., M.A., *Instructor in English* (1955).
Edsel Gainer,* B.S., M.S., *State Extension Dairy Specialist, Cooperative Extension Service* (1962), 1961.
Patrick Ward Gainer, A.B., M.A., Ph.D., *Professor of English* (1957), 1946.
Mannon Elihu Gallegly, B.S.A., M.S., Ph.D., *Professor of Plant Pathology; Plant Pathologist, Agricultural Experiment Station* (1960), 1949.
Alfred Freddie Galli, B.S.Ch.E., M.S.Ch.E., *Associate Professor of Chemical Engineering* (1962), 1946.

Sidney Longman Galpin, Ph.D., *Professor Emeritus of Hydrology; Hydrologist Emeritus, Agricultural Experiment Station* (1957), 1927. (Deceased, October 23, 1962).

Samuel Chester Gambrell, Jr., B.S., M.S., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962).

Edwin C. Gangloff, B.A., M.A., Ph.D., *Assistant Professor of Medical Biochemistry* (1955).

Louis Michael Garcia, Jr., *Photographer, Visual Education Service, Medical Center* (1961). (Resigned August 15, 1962).

Daniel Hodges Garrison, A.B., *Instructor in Ancient and Classical Languages* (1962).

Louis Allen Garvin, Col., USAF, B.S., *Professor of Air Science* (1962), 1960.

Avery Freeman Gaskins, A.B., M.A., *Instructor in English* (1958), 1954.

Virginia Wood Gaston, B.S.Pharm., *Staff Pharmacist, University Hospital* (1962).

Grant Eaton Gauger, B.S., M.D., *Instructor in Gross and Neurological Anatomy* (1961). (On military leave July 1, 1962-).

Wilson Irvin Gautier, A.B., M.A., *Instructor* (part-time) *in Education* (1962), 1960.

Thomas William Gavett, B.B.A., M.S., Ph.D., *Director, Institute of Industrial Relations; Associate Professor of Economics* (1961), 1957.

Frederick Linck Geiler, B.S., M.S., *Professor of Pharmacy* (1950), 1928.

Hasan Tahsin Gencsoy, B.S.M.E., M.S.M.E., *Associate Professor of Mechanical Engineering* (1962), 1949.

Clara Fay George, B.S.Pharm., *Pharmacist, University Health Service* (1951).

Vincent Frederic Gerencser, B.S., Ph.D., *Assistant Professor of Microbiology* (1961).

Walter Henry Gerwig, Jr., A.B., M.D., *Professor of Surgery* (1962), 1960.

Alfred David Ghaphery, B.S., M.D., *Resident in Surgery, VA Hospital, Clarksburg, W. Va.* (1961).

Nicholas Giarritta, B.A., M.D., *Clinical Instructor in Pathology* (1962).

Eleanor Reid Gibbard, B.A., M.S., *Instructor in French* (1961). (Resigned February, 1962).

Harold Allan Gibbard, B.A., M.A., Ph.D., *Professor and Chairman of Sociology* (1948).

John Arthur Gibson, Jr., B.S., Ph.D., *Professor of Chemistry* (1953), 1926.

Robert Carlton Gibson, B.A., M.A., Ph.D., *Assistant Professor of Political Science* (1961).

Alan M. Gilbert, B.A., M.H.A., *Assistant Director, University Hospital* (1960).

Bernard Gilbert, B.S., M.S., *Instructor in Mathematics* (1958).

Royal Clarence Gilkey, A.B., A.M., Ph.D., *Assistant Professor of Political Science* (1957).

William Harry Gillespie, B.S., M.S., *Instructor in Geology* (1958), 1957.

Chesla Armilla Gilmore, *Laboratory Technician, University Health Service* (1957).

Charles Hoffman Gilmour, B.S.Ch.E., M.S.Ch.E., *Lecturer in Chemical Engineering, Kanawha Valley Graduate Center of W.V.U.* (1959).

Wilbert E. Gladfelter, A.B., Ph.D., *Assistant Professor of Physiology* (1961), 1959.

Mary Jane Glasscock, B.M., M.M., *Instructor in Education* (1947), 1943.

Eleanor M. Glenn,° B.S.H.E., *District Extension Home Demonstration Supervisor, Cooperative Extension Service* (1961), 1926.

Louis Michael Glick, M.D., *Clinical Instructor in Medicine* (1960).

Joseph Clay Gluck, B.A., B.D., *Director of Student Affairs* (1948), 1943.

Francis Arthur Goad, A.B., M.D., *Intern, University Hospital* (1962).

Herman Godes, M.M., *Associate Professor of Music* (1960).

Helen Louise Godfrey, A.B., M.S., *Instructor in Mathematics* (1961), 1946.

Lawrence Peter Golan, B.S.M.E., *Instructor* (part-time) *in Mechanical Engineering* (1962).

John Ford Golay, B.A., M.A., D.Phil.(Oxon.), *Provost of the University; Dean of the Graduate School; Professor of History* (1961).

Joseph Arnold Golz, B.S., M.A., *Associate Professor of Music* (1959).
Elizabeth Jane Goodall, A.B., M.A., *Associate Professor of History, University Extension Division* (1945).
Claude Arwe Goode, B.S., B.S.E.M., *Assistant Director of Mining Extension* (1961), 1956.
William Russell Goodge, B.S., M.A., Ph.D., *Assistant Professor of Gross and Neurological Anatomy* (1961), 1957.
Allen Wright Goodspeed, B.S., M.F., *Professor of Forest Management; Forester, Agricultural Experiment Station* (1949).
Dean Roy Goplerud, B.A., M.D., *Instructor in Obstetrics and Gynecology* (1961).
Helen Margaret Gorman, M.D., *Research Fellow in Surgery* (1961).
Charles Ernest Goshen, M.D., *Clinical Associate Professor of Psychiatry* (1962), 1961.
Henry Wadsworth Gould, B.A., M.A., *Assistant Professor of Mathematics* (1961), 1958.
Babette Graf, B.S., M.S., *Assistant Professor of Home Economics* (1961).
Nancie Ann Graham, B.S., *Medical Technologist, University Hospital* (1961).
William Lee Graham, B.A., D.D.S., *Associate Professor of Oral Diagnosis* (1959).
William Lute Graves, Jr., B.A., B.M., M.A., Mus.Doc., *Assistant Professor of Music* (1960).
Thomas Davis Gray,* B.S., *Extension Landscape Architect* (retired), *Cooperative Extension Service* (1959), 1919.
Jack Daniel Graybeal, B.S., M.S., Ph.D., *Professor of Chemistry* (1962), 1957.
Thomas Aaron Grayson, *Ticket Manager, Intercollegiate Athletics* (1962).
Robert Greco, B.S., A.B., M.D., *Clinical Assistant Professor of Obstetrics and Gynecology* (1960).
Carolyn Kiddy Gregori, A.B., *Assistant Dietitian, Arnold Hall* (1961).
Lloyd Raymond Gribble, B.S., M.S., Ph.D., *Associate Dean, College of Arts and Sciences; Professor of Zoology* (1961), 1929.
Grace Margaret Griffin, M.A., *Professor Emeritus of Physical Education* (1957), 1923.
Lillian V. Gross, R.N., *Nurse, University Infirmary* (1960).
Ruth Brill Gross, B.S., M.S., *Psychometrist, Student Counseling Service* (1961).
Howard Randall Grumpelt, B.A., A.M., *Instructor in Psychology* (1961).
Marshall Bernard Gunselman, B.S., M.S.Ed., Ed.D., *Assistant Professor of Education* (1961).
Ajoy Gupta, B.Med., *Fellow in Anesthesiology* (1962).
Roland Lee Guthrie, B.S.F., M.S., *Arboretum Assistant and Instructor in Biology* (1959), 1956.
Albert C. Gwynne, B.S., M.S., *Head Athletic Trainer, Intercollegiate Athletics; Assistant Professor of Physical Education* (1946), 1934.
Raymond Michael Haas, B.S., M.B.A., D.B.A., *Assistant Professor of Marketing* (1961).
Virginia Pearl Hagemann, B.S., A.M., *Assistant Professor of Pediatric Nursing; Assistant to the Dean, School of Nursing* (1961).
Charles A. Haley, M/Sgt., *Instructor and Assistant Rifle Team Coach in Military Science; Administrative Supervisor, Military Science* (1958), 1953.
Arthur A. Hall, B.S.M.E., *Professor Emeritus of Electrical Engineering* (1951), 1916.
George Arthur Hall, B.S., Ph.D., *Associate Professor of Chemistry* (1956), 1950.
James Lester Hall, A.B., M.S., Ph.D., *Professor and Chairman of History* (1962), 1946.
John Edgar Hall, B.S., M.S., Ph.D., *Assistant Professor of Microbiology* (1960), 1958.
John Gilbert Hall, B.S., *State Agriculturist, Agricultural Experiment Station* (1947).
Lillian Bailey Hall, *Dietitian, Women's Dining Hall* (1953), 1952.
Sam H. Hall, S/Sgt. USAF, *Administrative Assistant in Air Science* (1960).
Sobisca Stalnaker Hall, B.S., M.D., *Clinical Assistant Professor of Surgery* (1961).
F. Gerald Ham, A.B., M.A., Ph.D., *Associate Curator, West Virginia Collection, Library* (1958).

Paul W. Hamelman, A.B., M.B.A., Ph.D., *Assistant Professor of Management* (1960).

James Francis Hamilton, B.S.M.E., M.M.E., *Associate Professor of Mechanical Engineering* (1957), 1956.

Clifford Charles Hamrick, *Junior Reference Librarian, Library* (1962), 1959.

Roscoe Elton Hanna, Jr., B.S., *Supervisor of Industrial Extension; Assistant Director of Fire Service Extension* (1949), 1944.

Evan Merrill Hardin, *Superintendent of General Services, Physical Plant* (1956).

Lenette May Hardin, A.B., M.A., *Instructor in Speech* (1959).

Nestor Carl Hardin,* B.S., M.S., *State Extension Garden Specialist, Cooperative Extension Service* (1960), 1958.

Thomas Porter Hardman, M.A., J.D., *Professor Emeritus of Law* (1957), 1913.

Marion Dolores Harless, A.B., M.A., *Instructor in Psychology* (1960). (Resigned May 31, 1962).

John Barker Harley, B.S., M.D., *Assistant Professor of Medicine* (1955).

Jane Elizabeth Harman, B.A., *Medical Dietitian, University Hospital* (1962).

Harold H. Harper, B.S.Pharm., *Purchasing Expediter, Comptroller's Office* (1961).

Kenneth Reed Harper, B.S., M.S., *Instructor in Education; Teacher, University High School* (1958), 1956. (Resigned June 1, 1962).

Phyllis Ann Harper, B.S.H.E., M.S., *Assistant Medical Director, Diet Department, University Hospital* (1960).

Delvin Dae Harrah, B.A., M.A., Ed.D., *Associate Professor of Education* (1962).

Stephen Harrick, A.B., M.A., *Head Coach of Baseball and Wrestling; Associate Professor of Physical Education* (1955), 1924.

Ernest Keith Harris, S/Sgt., *Supply Sergeant in Air Science* (1958). (Resigned July 17, 1962).

Stanley Robert Harris, A.B., M.S., *Assistant Registrar* (1953).

Ray A. Harron, B.S., M.D., *Clinical Instructor in Radiology* (1962).

Edward Charles Harry, B.E.M.E., *Lecturer in Mechanical Engineering, Kanawha Valley Graduate Center, W.V.U.* (1959). (Resigned June 4, 1962).

Harvey H. Hartwig, Lt.Col., B.S., *Associate Professor of Military Science* (1957).

H. Richard Hartzler, A.B., J.D., *Assistant Professor of Business Law, College of Commerce* (1959).

John Jackson Harvey,* B.S., M.S., Ph.D., *Associate Professor of Agricultural Education; Training Leader, Cooperative Extension Service* (1961), 1953.

Virginia Courtney Harvey, B.S.H.E., *Dietitian, Terrace Hall* (1959).

Lee Earl Harville, SFC, *Assistant Supply Sergeant in Military Science* (1960). (Resigned September 14, 1962).

Barbara Anne Hash, B.S., *Staff Pharmacist, University Hospital Pharmacy* (1960).

Ted Robert Hash,* B.S., *State Extension Poultry Specialist, Cooperative Extension Service* (1962), 1937.

Margaret V. Hastings, B.S., M.A., *Assistant to Director of Business Affairs* (1961).

Fabry Livingstone Hawk, A.S.C.P., *Assistant Director, University Health Service Laboratory* (1956), 1935.

Joseph William Hayduk, B.S., D.D.S., *Intern in Oral Surgery* (1962).

Donald Edward Hayhurst, A.B., M.Litt., Ph.D., *Associate Professor of Political Science* (1959), 1956.

J. Lester Hayman, Ph.D., B.S.Pharm., M.S., *Dean Emeritus and Professor of Pharmacy* (1961), 1919.

Russell Rex Haynes, B.S.M.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962).

Milton Tidd Heald, A.B., M.A., Ph.D., *Professor of Geology* (1960), 1948.

Lois Vivaneen Heflin, A.B., M.S., *Instructor in Mathematics* (1956).

Edgar Frank Heiskell, Jr., A.B., B.S., M.D., *Physician* (part-time), *University Health Service; Assistant Professor of Surgery* (1957), 1948.

Claire Young Henn, B.S., *Senior Admissions Clerk, University Hospital* (1960).

Dora Fergusson Hennen, A.B., M.S., *Instructor in Mathematics* (1958), 1933.

James H. Henning, A.B., M.S., Ph.D., *Professor and Chairman of Speech* (1945).

Patricia Ann Henning, B.S., M.S., *Senior Reference Librarian* (1961), 1960. (Resigned July 31, 1962).

Lyle E. Herod, A.B., M.S., *Assistant Registrar, Medical Center* (1956), 1947.
Francisco Herrera, A.B., M.A., *Associate Professor of Romance Languages; Associate Director of Summer Language Institute,* 1961- . (1960), 1946.
Willis H. Hertig, Jr., A.B., M.A., *Instructor in Biology* (1960).
John William Hesen, A.B., M.S., B.S., M.D., *Physician, University Health Service and Athletics* (1959), 1957.
C. Gordon Hewes, B.A., M.S., Ph.D., *Associate Professor of Gross and Neurological Anatomy* (1960).
James Blake Hickman, B.S., M.S., Ph.D., *Professor of Chemistry* (1962), 1946.
John Lewis Hicks, Jr., A.B., A.M., *Assistant Professor of English; Director of Freshman English* (1960), 1949.
Ruth Morrel Hicks, A.B., M.A., *Instructor in History* (1961).
A. Curtis Higginbotham, B.S., Ph.D., *Associate Professor of Microanatomy and Organology* (1957).
Leonard F. Higney, A/1C, USAF, *Administrative Assistant in Air Science* (1960).
John Delbert Hill, M/Sgt., USAF, *Supply Sergeant in Air Science* (1962).
Richard B. Hilts, B.M., M.M., *Assistant Professor of Music and Acting Chairman of Applied Music* (1960), 1956. (Resigned August 24, 1962).
Marcia Louise Hipke, B.S., *Research Technician in Pediatrics* (1962).
Charles Edward Hockenberry, B.S., M.S., *Assistant Business Manager of Intercollegiate Athletics* (1956), 1952.
Theodore Skeen Hoffman, B.S., *Head Medical Technologist, University Hospital* (1961).
Arthur Newsome Hofstetter, A.B., M.A., Ed.D., *Professor of Education; Coordinator, Research and Field Services, College of Education* (1960), 1955.
John Wesley Hogan, B.A., M.S., *Instructor in Mathematics* (1962).
Margaret Price Hoke, A.B., M.A., *Instructor in Integrated Studies and English* (1955).
Ruth Wheeler Holden, M.A., *Instructor in English* (1944).
Charles Thomas Holland, B.S.E.M., M.S.E.M., *Dean, School of Mines; Director, Mining and Industrial Extension; Professor of Mining Engineering* (1961), 1930.
Sam Vernon Holroyd, B.S., D.D.S., *Instructor in Pharmacology* (1961). (Resigned September 7, 1962).
Gordon Payne Holt, M.D., *First-Year Resident in Surgery* (1962).
Marsh Hanford Holt, B.S., M.D., *First-Year Resident in Anesthesiology* (1962), 1961.
Frederick John Holter, A.B., M.A., Ph.D., *Professor and Chairman of Health Education and Graduate Studies* (1948), 1947.
Ninnian Edward Hopson, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1961).
Leo Horacek, B.M.E., B.M., M.M.E., Ph.D., *Associate Professor of Music* (1962), 1960.
Margaret Baker Horacek, A.B., *Binding Assistant* (part-time), *Medical Center Library* (1962), 1961.
Joe R. Horton, *Purchasing Expediter, Purchasing and Inventory, Comptroller's Office* (1959).
Donald James Horvath, B.S., M.S., Ph.D., *Associate Professor of Animal Science; Associate Animal Husbandman, Agricultural Experiment Station* (1960), 1957.
Ali A. Hossani, B.A., M.S., Ph.D., *Instructor in Clinical Pathology* (1962).
Stanley M. Hostler, B.A., M.A., *Assistant Director, University Extension Division; Director, Labor Education Service* (1962), 1959.
Nita Jean Houchins, B.S., B.S.Ed., M.A., *Instructor* (part-time) *in Education* (1962).
Douglas W. Houston, A.B., M.A., Ph.D., *Assistant Professor of History* (1961).
Edward W. Houy, Capt., B.S., *Associate Professor of Military Science and Supply Officer in Military Science* (1959). (Resigned June 17, 1962).
Agnes B. Hovee, B.A., M.A., *Director of Residence Halls* (1956), 1950.
John Weston Howard, A.B., A.M., *Assistant Professor of Dental Literature* (1959), 1950.
Martha Cummins Howard, A.B., A.M., *Instructor in English* (1960).

HERBERT HENRY HOWENSTEIN, *Research Technician in Agricultural Engineering* (1961), 1956.
EARL HUDELSON, A.B., M.A., PH.D., *Professor Emeritus of Education* (1959), 1920.
PAUL ELISHA HUFFINGTON, JR., M.D., *Second-Year Resident in Anesthesiology* (1962).
DONALD THEDRON HUFFMAN, B.A., M.A., *Instructor in German; Director of Language Laboratory, Department of Foreign Languages* (1956).
KATHRYN HUFFMAN, A.B., M.S., *Assistant Chemist* (part-time), *Engineering Experiment Station* (1944).
DOLORES HUGHES, A.B., M.A., *Instructor in Psychology* (1958). (Resigned May 31, 1962).
GEORGE LOUIS HUMPHREY, A.B., M.S., PH.D., *Associate Professor of Chemistry* (1957), 1952.
GERTRUDE HUMPHREYS,* A.B., *State Extension Home Demonstration Leader, Cooperative Extension Service* (1933), 1926.
ROBERT TASKER HUMPHRIES, M.D., *Assistant Clinical Professor of Surgery, Orthopedic Section* (1961).
HAROLD T. HUNTER, B.A., *Assistant Football Coach; Instructor in Physical Education* (1962).
BEATRICE HURST, A.B., M.A., *Associate Professor of Women's Physical Education* (1951), 1928.
BLANCHE LUCILLE HUTCHINSON, B.M., M.M., *Accompanist and Instructor in Physical Education* (1954). (Resigned June 1, 1962).
JOSEPH M. HUTCHISON, JR., A.B., M.S., *Assistant Professor of Recreation* (1961), 1957.
BETTY JO HYPES, B.S., M.A., *Instructor in English* (1960), 1956.
HAROLD MARTENEY HYRE, B.S., M.S., *Associate Professor of Poultry Science; Associate Poultry Scientist, Agricultural Experiment Station* (1944), 1931.
ROBERT LEE IDEN, *Production Manager, Office of Publications* (1961).
STANLEY OLIVER IKENBERRY, B.A., M.A., PH.D., *Assistant to the Provost; Assistant Professor of Education* (1962).
LAWRENCE JOSEPH INTRAVAIA, B.M., M.M., *Assistant Professor of Music; Director of University Bands* (1953), 1950. (Resigned August 3, 1962).
THOMAS STANLEY ISAACK, D.B.A., M.B.A., B.B.A., *Professor of Management* (1960), 1951.
WILLIAM GLENN ISNER, B.S., M.S., *Instructor* (part-time) *in Chemistry* (1962).
NANCY ANN JACKSON, R.N., B.S., *Instructor in Pediatric Nursing* (1962).
NORMAN D. JACKSON, B.S.F., M.W.T., *Assistant Professor of Forest Utilization; Assistant Forester, Agricultural Experiment Station* (1961), 1953.
DAVID WOOD JACOBS, A.B., *Director, Bureau of Public Information; Executive Secretary, Alumni Association* (1938).
VERNON RHODES JAMES, *Lecturer in Journalism* (1953)
KATHIRENE MAE JAMISON, A.B., *Counselor to Women* (1962), 1958.
JAN WALTER JANSSEN, LT.COL., B.S., *Assistant Professor of Air Science* (1962).
WALTER H. JARECKE, B.S., M.ED., ED.D., *Director of Guidance; Professor of Education and Coordinator of Counseling Training* (1949).
BRUCE WILLIAM JARVIS, B.A., B.S., M.D., *Instructor in Pathology; Director of Blood Bank and Hematology and Clinical Laboratories* (1962).
OLEG JEFIMENKO, B.A., M.A., PH.D., VORDIPLOM, *Associate Professor of Physics* (1960), 1956.
EVERETT MILTON JENCKS, B.S., PH.D., *Assistant Professor of Agronomy; Assistant Agronomist, Agricultural Experiment Station* (1957).
CHARLES R. JENKINS, B.S., M.S., *Assistant Professor of Sanitary Engineering* (1961).
BONNIE GEOY JOEHNK, B.M., M.M., *Instructor in Music* (1962).
CARL EDWARD JOHNSON, A.B., B.S., M.D., *Assistant Clinical Professor of Medicine* (1961), 1940.
CLYDE EDGAR JOHNSON, JR., B.A., M.S., *Instructor in Biology; Research Assistant in Dairy Science* (1960), 1957.
JAY EWERS JOHNSON, JR., B.S., M.B.A., C.P.A., *Assistant Professor of Accounting* (1961), 1956.

JOHN ROBERT JOHNSON, B.S., M.S., *Research Assistant in Poultry Science* (1960).
MELVIN WALTER JOHNSON, JR., B.S., M.S., PH.D., *Associate Professor of Agronomy; Associate Agronomist, Agricultural Experiment Station* (1960), 1956.
ROBERT JOSEPH JOHNSON, M.D., *Professor and Chairman of Gross and Neurological Anatomy* (1957).
JOHN HUBERT JOHNSTON, B.A., M.A., PH.D., *Assistant Professor of English* (1960), 1954.
NELL JOINER, R.N., B.S., B.A., *Instructor in Maternity Nursing* (1961).
BARBARA JONES, A.B., M.D., *Assistant Professor of Pediatrics* (1961).
EDWIN CHANNING JONES, B.S.E.E., M.S.E.E., *Professor and Chairman of Electrical Engineering; Electrical Engineer, Engineering Experiment Station* (1948), 1925.
ERNEST LEWIS JONES, A.B., M.A., *Superviser, Data Processing Center, Registrar's Office* (1960), 1955.
JOHN EVAN JONES, B.S., M.D., *Instructor in Medicine* (1961), 1960.
MARGARET M. JONES, *Staff Assistant, Registrar's Office* (1962), 1930.
MARY ROSE TAYLOR JONES, B.S., M.S., *Associate Professor of Home Economics* (1959), 1941.
OWEN LLOYD JONES, A.B., M.S., *Instructor in Chemistry* (1960), 1957.
PATRICIA KELLY JONES, A.B., D.B., *Executive Secretary, University Y.W.C.A.* (1960). (Resigned June 30, 1962).
PAUL RUSSELL JONES, B.CER.E., M.S., *Professor of Ceramic Engineering* (1957), 1947.
RUTH K. JONES,* B.S., M.S., *Extension Clothing Specialist, Cooperative Extension Service* (1946), 1941.
THEODORE M. JUDY, A.B., *Junior Cataloguer, Medical Center Library* (1962), 1959.
GERALD ALVIN JUNG, B.S., M.S., PH.D., *Assistant Professor of Agronomy; Assistant Agronomist, Agricultural Experiment Station* (1958).
WILLIAM K. KATZ, B.S., M.S., *Assistant Professor of Education* (1959).
BARRY JAY KEAGY, B.S.M.E., *Instructor in Mechanical Engineering* (1961).
LOUISE KEENER, B.A., *Comptroller and Director of Business Affairs* (1954), 1929.
ELMER ELLSWORTH KELLN, B.S., D.D.S., M.S.D., *Associate Professor of Oral Pathology, School of Dentistry* (1960).
ANNA MARY KELLY, *Librarian, College of Law* (1959), 1958.
WARREN GEORGE KELLY, B.S.AGR., M.S.AGR., *Assistant Professor of Agricultural Education* (1957).
EMORY LELAND KEMP, B.S., M.SC., PH.D., *Associate Professor of Civil Engineering* (1962).
CLAUDE RAY KEMPER,* B.S.AGR., M.S.AGR., *District Extension Agricultural Supervisor, Cooperative Extension Service* (1955), 1946.
EDDIE CLIFTON KENNEDY, A.B., A.M., D.ED., *Professor of Education; Coordinator of Reading Center* (1960), 1953.
ALEXANDER DONOVAN KENNY, B.SC., M.S., PH.D., *Associate Professor of Pharmacology* (1959).
JAMES ALBERT KENT, PH.D., *Professor of Chemical Engineering; Nuclear Engineer, Engineering Experiment Station; Director, Nuclear Engineering Program* (1958), 1954.
HAROLD NEELY KERR, A.B., M.LITT., PH.D., *Associate Professor of Sociology* (1959), 1946.
KIRKLYN MCNEER KERR, B.S., D.V.M., *Research Associate, Department of Animal and Veterinary Science* (1962).
HAROLD EDWARD KIDDER, B.S., M.S., PH.D., *Professor of Animal Science; Animal Husbandman, Agricultural Experiment Station* (1960), 1954.
JOAN GAYLE KILPATRICK, B.A., M.A., *Labor Education Specialist, University Extension Division* (1961).
GEORGE SMITH KING, JR., B.S., M.S., *Instructor in Physical Education and Head Basketball Coach* (1960), 1958.
EMILY B. KIRBY, B.A., M.A., *Instructor in English* (1962).
FRANK EUGENE KIRBY, B.A., PH.D., *Assistant Professor of Music* (1961).
EVANS LEE KLINE, B.S.E.E., *Instructor in Electrical Engineering* (1961).
WILLIAM GENE KLINGBERG, A.B., M.D., *Professor and Chairman of Pediatrics* (1960).

John Oliver Knapp, B.S.Agr., *Assistant to Dean, College of Agriculture, Forestry, and Home Economics* (1961), 1917.
John Alfred Koburger, B.S., M.S., Ph.D., *Assistant Professor of Bacteriology; Assistant Bacteriologist, Agricultural Experiment Station* (1962).
Christian Burdick Koch, B.S.F., M.S.F., *Assistant Professor of Forestry; Assistant Forester, Agricultural Experiment Station* (1955), 1951.
Evelyn Maude Kocher, B.A., B.S.L.S., M.S.L.S., *Senior Catalogue Librarian* (1958).
Walter Allos Koehler, B.S.Ch.E., Ch.E., M.S., Ph.D., *Director of the Engineering Experiment Station; Associate Dean, College of Engineering* (1961), 1924.
Donald Maurice Koppel, B.S., M.D., *Clinical Instructor* (part-time) *in Medicine* (1960).
Reginald Frederick Krause, A.B., B.S., M.S., Ph.D., M.D., *Professor and Chairman of Biochemistry, Medical Center.* (1951).
Frances Catherine Krauskopf, A.B., A.M., Ph.D., *Assistant Professor of History* (1956).
John Belshaw Kreer, B.S.E.E., M.S.E.E., Ph.D., *Professor of Electrical Engineering* (1960), 1959.
Helen Louise Kudla, B.S., *Head Nurse, University Health Service* (1957), 1950.
Joan Gilbert Kulman, B.S.H.E., *Instructor in Home Economics* (1959). (Resigned June 1, 1962).
Susumu Kuwayama, M.D., *Second-Year Resident in Pediatrics* (1962).
Blanche Harmison Kuykendall, R.N., *Junior Circulation Librarian, Medical Center* (1962), 1956.
Margaret Cornelia Ladwig, A.B., Ed.M., Ph.D., *Placement Advisor* (1952), 1949.
Richard Willoughby Laird, B.S.E.M., M.S.E.M., *Associate Professor of Mining Engineering* (1953), 1947.
Carlos Miguel Lajara, M.D., *Third-Year Resident in Pathology* (1962), 1961.
Bernice Leil Lambert, *Social Director* (retired), *Women's Residence Hall* (1962), 1952.
Janet Belle Lang, *Head Nurse, University Hospital Recovery Room* (1961).
E. Schrae LaPlante, B.S., M.D., *Intern, University Hospital* (1962).
Werner A. Laqueur, M.D., *Assistant Clinical Professor of Pathology* (1961).
Edgar Albert Lavergne, B.Sc., M.A.Sc., Ph.D., *Lecturer in Chemical Engineering, Kanawha Valley Graduate Center of W.V.U.* (1959).
Beatrice B. Law, A.B., M.A., *Instructor in English* (1949).
John Joseph Lawless, B.S., M.A., Ph.D., M.D., *Director, University Health Service; Associate Professor of Medicine* (1944), 1935.
Charles Lester Lazzell, A.B., M.S., Ph.D., *Professor of Chemistry* (1961), 1919.
Julian Gilbert Leach, B.S.A., M.S., Ph.D., *Professor of Plant Pathology; Plant Pathologist, Agricultural Experiment Station* (1960), 1938.
Gordon Leslie Leckie, B.S.J., *Assistant Director, University News Service, Bureau of Public Information* (1961).
Marvin Robert Lee, B.S., M.A., *Instructor in Education; Teacher* (part-time), *University High School; Director, Workshop on Economic Education; Director, Conservation Education Workshop* (1956).
Gerald Lefkoff, B.S., M.M., Ph.D., *Assistant Professor of Music* (1961).
Victor Jacob Lemke, B.A., M.A., Ph.D., *Professor of German* (1955), 1939.
Jessie Fortney Lemley,* B.S.H.E., *District Extension Home Demonstration Supervisor, Cooperative Extension Service* (1951), 1942.
Joseph William Leonard, B.S., M.S., *Director, Coal Research Bureau* (1961).
Nell Lanhan Leonian, B.S.H.E., A.M., *Instructor in English; Advisor for Foreign Students* (1947), 1931.
Arnold David Levine B.E.E., A.M., Ph.D., *Assistant Professor of Physics* (1962), (1957).
Mortimer Levine, B.A., A.M., Ph.D., *Associate Professor of History* (1961), 1955.
Catherine Mary Lewis, B.A., *Instructor in Art, Parkersburg Branch* (1962).
Howard Lee Lewis, B.S.J., M.A., *Administrative Assistant to Vice-President—Medical Center* (1962), 1959.
Olive Densmore Lewis, B.A., B.S., *Assistant Professor of Library Science* (1962).
Walter Richard Lewis, B.S., M.S., Ph.D., *Professor and Chairman of Agricultural Biochemistry and Nutrition; Agricultural Biochemist, Agricultural Experiment Station* (1951). (Deceased August 25, 1962).

DENNIS R. LEYDEN, B.S., *Assistant Professor of Economics* (1962).
VIRGIL GREENE LILLY, A.B., M.A., PH.D., *Professor of Physiology; Physiologist, Agricultural Experiment Station* (1949), 1927.
HUGH ALEXANDER LINDSAY, B.SC., M.SC., PH.D., *Associate Professor of Physiology, Medical Center* (1960), 1955.
HARRY TETER LINGER, B.A., M.D., *Clinical Instructor in Surgery* (1962).
RICHARD S. LITTLE, A.B., M.A., PH.D., *Assistant Professor of Geography* (1962).
GERMAN LIZARRALDE, M.D., *Second-Year Resident in Medicine* (1961), 1960.
MARY ANN LOAR, B.S.REC., *Social Director, Terrace Residence Hall* (1962).
ROBERT L. LOCHMUELLER, B.S., M.S., *Assistant Basketball Coach; Instructor in Physical Education* (1961).
THOMAS ANTHONY LOFTUS, A.B., M.D., *Professor and Chairman of Psychiatry* (1961).
C. ALBERT LONG, B.S., *Instructor in Physical Education* (1962).
J. EVERETT LONG, A.B., A.M., *Registrar of the University and Chairman of the Committee on Admissions* (1945), 1929.
THOMAS RICHARD LONG, B.S.M.E., *Instructor in Mechanical Engineering* (1958).
ALFRED DELBERT LONGHOUSE, B.S., M.S., PH.D., *Professor and Chairman of Agricultural Engineering; Agricultural Engineer, Agricultural Experiment Station* (1945), 1938.
WILLARD DEAN LORENSEN, B.A., LL.B., LL.M., *Associate Professor of Law* (1959).
FRANK EDELL LORINCE, JR., B.M., M.M., *Assistant Professor of Music and Acting Chairman of Theory and Composition* (1960), 1950.
ROSALIE VIRGINIA LOSH, R.N., *Head Nurse, Station 52, University Hospital* (1960).
FREDERICK JACKSON LOTSPEICH, B.S., M.S., PH.D., *Associate Professor of Biochemistry* (1959), 1956.
WILMA JEAN LOUDIN, B.S., M.S., *Instructor in Mathematics* (1960), 1955.
BETHOLENE FRANCES LOVE, B.S., M.S., *Associate Professor and Associate Director of Medical Technology* (1962), 1955.
CHARLES SAMUEL LOWE, B.S., M.S., PH.D., *Research Associate, Agricultural Biochemistry and Nutrition, Agricultural Experiment Station* (1961). (Resigned October 31, 1961).
VERNON FRED LOWENBERG, A.B., M.S., *Instructor in Mathematics* (1953). (Resigned January 15, 1962).
CHARLES DEFORREST LUCAS, B.S., M.S., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962).
RUSSELL VAIL LUCAS, JR., B.A., M.D., *Assistant Professor of Pediatrics* (1961).
JOHN LUCHOK, B.S.J., *University Editor* (1953), 1950.
WAYNE WESLEY LUCHSINGER, B.S., M.S., PH.D., *Associate Professor of Biochemistry; Associate Biochemist, Agricultural Experiment Station* (1960).
JOHN CHARLES LUDLUM, B.S., M.S., PH.D., *Director of Center for Resource Development; Professor of Geology* (1962), 1946.
MILDRED WELLS LUDLUM, B.S., *Acquisitions Assistant* (part-time), *Medical Center Library* (1962), 1959.
MARLYN EDWARD LUGAR, A.B., LL.B., J.S.D., *Professor of Law* (1951), 1939.
VIRGINIA GILMORE LUIKART, B.S., *Circulation Assistant* (retired), *Library* (1951), 1930.
ANN LOUISE LYNCH, B.A., *Medical Record Librarian, University Hospital* (1960).
GALE H. LYON,* B.S., M.S., *Program Leader, Economic Development, Cooperative Extension Service* (1961), 1954. (Resigned September 15, 1962).
ROGERS MCAVOY, B.A., M.A., *Instructor in Education* (1961).
JAMES LEONARD MCBEE, B.S., M.S., PH.D., *Assistant Professor of Animal Science; Assistant Animal Husbandman, Agricultural Experiment Station* (1959).
ARTHUR COOK MCBRIDE, A.B., A.M., DOCTEUR DE L'UNIVERSITE DE BORDEAUX, *Professor of Romance Languages* (1960), 1926.
FRANCIS HILL MCCLUNG, B.S., M.S., *Assistant Professor of Education, University Extension Division* (1956).
HARRY B. MCCLUNG, A.B., M.S., *Instructor in Mathematics* (1962), 1957.
JOSEPH DWIGHT MCCLUNG, B.S.E.E., B.S.E.M., M.S.E.M., *Associate Professor of Mining Engineering* (1961), 1941.
ERNIE BEVAN MCCUE, A.B., M.A., *Director of University Extension and Director of Labor Extension* (1952), 1947.

Emma Williamson McCutcheon, *Social Director, Arnold Residence Hall* (1957), 1955.
Mary Adeline McDaniel, A.B., M.A., *Administrative Assistant, Office of the President* (1957), 1941.
John J. McCutchen, M.D., *Research Assistant in Neurosurgery* (1962).
James Harry McElhaney, B.M.E., M.S.M.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962).
Elizabeth Adams McEnney, B.M., M.M., *Assistant Professor of Music* (1949).
Oliver Claude McGhee, B.S., M.S., *Assistant Professor of Agricultural Education* (1961).
Bernard Ronald McGregor, B.S.Ed., M.F.A., *Assistant Professor of Music* (1950), 1935.
Kenneth Dale McIntosh, B.S., M.S., *Assistant Agricultural Economist, Agricultural Experiment Station* (1957). (On leave to June 30, 1963).
Gaynelle McKinney, R.N., B.S., M.S., *Assistant Professor of Medical-Surgical Nursing* (1961).
Lois Jane McKinney, B.S., *Employment Supervisor, Personnel Office* (1960).
George Aiken McLaren, B.S., M.S., Ph.D., *Professor of Agricultural Biochemistry and Nutrition; Agricultural Biochemist, Agricultural Experiment Station* (1959), 1955.
Earl Glenn McLaughlin, A.B., M.A., *Instructor in Education and Chairman of Elementary Education* (1959).
William H. McMillion, B.S., *Assistant Comptroller* (1958), 1952.
Virginia Sue McMullen, B.S., *Instructor in Chemistry* (1962).
Ronald Bruce McPherson, B.S.C.E., M.S.C.E., *Instructor in Civil Engineering* (1962), 1960.
Joseph Richard McProuty, A.B., M.D., *Associate Professor of Radiology* (1961).
Robert F. McWhorter, B.S., M.S., *Director of Mountainlair* (1959).
Denis William MacDowell, B.S., M.S., Ph.D., *Assistant Professor of Chemistry* (1959).
Sam Madia, B.S., M.A., *Instructor in Education; Teacher, University High School* (1955).
Charles S. Mahan, A.B., M.D., *Clinical Assistant Professor of Obstetrics* (1960). (Deceased November 5, 1962).
John Friend Mahoney, B.S., M.S., Ph.D., *Assistant Professor of Chemical Engineering* (1960).
Dorothy Mae Major, R.N., B.S., M.A., Ed.D., *Dean, School of Nursing; Professor of Nursing* (1960).
Pervis Cheri Major, B.S., *Medical Technologist, University Hospital* (1962).
Hisham Salim Majzoub, B.Sc., M.D., *First-Year Resident in Surgery* (1961).
Ruth Mae Mammone, *Donor Room Nurse, Clinical Laboratories, University Hospital* (1962).
Warren Francis Manning, A.B., A.M., Ph.D., *Professor of Romance Languages; Fulbright Adviser* (1952), 1928.
Martin Matheny Mansperger, B.S., M.A., *Assistant Professor of Education, University Extension Division* (1952).
Emil Louis Mantini, B.A., M.S., M.D., *Chief Resident in Surgery* (1962), 1960.
James Clifford Markel, B.S., M.S., *Assistant Professor of Physical Education; Swimming and Soccer Coach* (1961).
Rebecca Thomas Markel, R.N. B.S., *Assistant Administrative Superintendent of Nursing Service; Supervisor of Outpatient Department, University Hospital* (1961).
Ray Stanley Marsh, B.S.Agr., A.M., *Professor of Horticulture; Horticulturist, Agricultural Experiment Station* (1960), 1936.
Robert James Marshall, M.D., M.R.C.P.I., M.R.C.P., *Associate Professor of Medicine* (1961).
Don Thomas Martin, B.S., *Teacher* (part-time) *University High School* (1961). (Resigned June 1, 1962).
Donald Clayton Martin, B.S., M.S., Ph.D., *Lecturer in Physics, Kanawha Valley Graduate Center of W.V.U.* (1959).
Glenn Fayette Martin, *Instructor in Industrial Engineering* (1940).

HERBERT E. MARTIN, A.B., D.D.S., *Clinical Instructor in Orthodontics* (1961).
JOHN HOPE MARTIN, B.S.E.E. M.S.E.E., *Assistant Professor of Electrical Engineering* (1960), 1957. (Resigned May 31, 1962).
THOMAS J. MARTIN, B.S., D.D.S., *Instructor* (part-time) *in Crown and Bridge Dentistry* (1961).
WILLIAM GILBERT MARTIN, B.S., M.S., *Instructor in Poultry Science* (1960), 1958.
ROSS MARUKA, A.B., M.A., LL.B., *Assistant Professor of Law* (1962), 1958.
ONEITA FRANCES MASCIOLI, R.N., *Nurse-Anesthesist* (1961), 1960.
CARMINE CHARLES MASCOLI, B.S., M.S., PH.D., *Assistant Professor of Microbiology* (1960).
W. ANNETTE MASSEY, R.N., B.S., M.S.N., *Assistant Professor of Psychiatric Nursing* (1961).
EUGENE ANTHONY MATTIS, A.B., *Visiting Assistant Professor of Economics* (1962).
S. SAMUEL MAURICE, B.A., M.S., HLTH&SAF DIRS., *Assistant Professor of Physical Education and Director of Intramural Activities* (1958).
GEORGE RALPH MAXWELL, B.S., M.D., *Clinical Associate Professor* (part-time) *of Medicine* (1961), 1924.
BOLESLAW MAZUR, B.S., M.S., D.D.S., *Assistant Professor of Crown and Bridge Dentistry* (1961).
ANITA C. MAZZOCCO, R.N., *Registered Nurse, Treatment Room, University Health Service* (1962).
VICTOR E. MAZZOCCO, A.B., B.S., M.D., *Resident in Medicine* (1962).
CHARLES ROBERT MEANS, MAJ., B.S., *Associate Professor of Military Science and Rifle Team Coach* (1959).
KENNETH ROBERT MEINE, B.M., *Instructor* (part-time) *in Music* (1962).
JANE ORR METZ, B.S., PHYS.THERAP., *Staff Physical Therapist, University Hospital* (1960).
DONALD LEE MICHAEL, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1961).
ANNETTE MIGNOGNA, R.N., *Head Nurse in Pediatrics* (1960).
LI CHUN MIH, B.S., M.S., *Research Engineer in School of Mines* (1962) .
MARGARET SUE MIKEAL, R.T., *Dental Laboratory Technician in Orthodontics* (1962), 1961.
D. FRANKLIN MILAM, A.B., B.S., M.D., *Associate Professor of Urology* (1960).
BETTY LOUISE MILLER, B.S.CH.E., M.S., *Instructor in Mathematics* (1957).
DELMAS FERGUSON MILLER, A.B., M.S., PH.D., *Professor of Education; Chairman, Department of Secondary Education; Director, University High School* (1958), 1949.
FLOYD WALDO MILLER, A.B., B.S.L.S., M.A., M.S.L.S., *Chief Reference Librarian* (1958). (Resigned February 28, 1962).
LAWRANCE SAMUEL MILLER, B.A., M.D., *Assistant Professor of Orthopedic Surgery* (1960).
LEROY D. MILLER, B.A., M.H.A., *Administrative Assistant, University Hospital* (1962), 1961.
PAUL AUSBORN MILLER, B.S., M.A., PH.D., LL.D., *President of the University; Professor of Sociology* (1962), 1938.
JACK GILLESPIE MILNE, COL., B.A., *Professor of Air Science* (1958). (Resigned June 6, 1962).
FREDERICK WILLIAM MILTENBERGER, B.S., M.D., *Resident in Surgery* (1961).
JAMES EDWARD MILTENBERGER, B.M., M.M., *Instructor in Music* (1962).
RICHARD ALLEN MILUM, B.S., M.A., *Instructor in English* (1961).
WILLIAM S. MINOR, A.B., D.B., *Associate Professor of Philosophy* (1946).
MICHAEL K. MISCHAIKOW, M.A., PH.D., *Assistant Professor of Economics* (1960).
KATHLEEN AYERS MITCHELL, STD.NORM., *Social Director, Women's Hall* (1952), 1940.
RALPH GERALD MITCHELL, B.S., M.S., PH.D., *Associate Professor of Dairy Science; Associate Dairy Scientist, Agricultural Experiment Station* (1960), 1957.
CHARLES ERNEST MODLIN, B.A., M.A., *Instructor in English* (1960).
ZA-LEE MOH, B.S.C.E., M.S.C.E., PH.D., *Associate Professor of Civil Engineering* (1962), 1961.
ETHEL C. MONTIEGEL, B.A., M.S., *Instructor in Biology* (1956).
ELLIS EDWIN MOOD, *Flight Instructor in Aero-Space Engineering* (1956).

Byron Wayne Moore,* B.S.Agr., *State Extension Poultry Specialist, Cooperative Extension Service* (1962), 1947.
Dane W. Moore, Jr., B.S., M.S., *Chief Technologist in Microbiology, Clinical Laboratory, University Hospital; Instructor in Medical Technology* (1962), 1955.
Richard Franklin Moore, *Draftsman, Physical Plant* (1962).
Walter Harrison Moran, Jr., B.A., B.S., M.D., *Instructor in Surgery* (1960).
Donald Stephen Morelli, B.S., M.A., *Assistant Coordinator of Rehabilitation Counseling* (1961). (Resigned October 31, 1961).
Bernice Carolyn Morgan, R.N., *Assistant Operating Room Supervisor, University Hospital* (1960).
David Zackquill Morgan, B.S., M.D., *Second-Year Resident in Internal Medicine* (1961), 1953.
Lillie W. Morgan, A.B., A.M., *Teacher, University High School* (1962).
Arthur Lewis Morris, Jr., A.B., *Financial Secretary, Office of Comptroller* (1960).
Barbara Jean Morris, R.N., *Head Nurse, Station 51, University Hospital* (1960).
Clyde McMahon Morris, B.S., M.S., Ph.D., *Assistant Professor of Education; Executive Secretary, W. Va. School Boards Association* (1959). (Resigned September 1, 1962).
Joseph L. Morris,* B.S., M.S.Agr., *District Extension Agricultural Supervisor, Cooperative Extension Service* (1955), 1954.
Samuel John Morris, M.D., *Professor Emeritus of Physical Education* (1955), 1912.
William O. Morris, A.B., LL.B., *Professor of Law* (1960), 1958.
Richard Harvey Morrison, B.S., M.S., *Instructor in Chemistry* (1959).
Joe Francis Moss, A.B., M.A., *Instructor in Art* (1960).
Wendell William Moyer, Jr., A.B., Ph.D., *Assistant Professor of Chemistry* (part-time) *Parkersburg Branch* (1962).
Mildred Iona Moyers, A.B., M.A., M.S.L.S., *Chief Acquisitions Librarian* (1959), 1955.
Caroline Turton Mudd, B.S., M.S.W., *Assistant Professor of Social Work* (1957). (On leave of absence to June 30, 1963).
Beth Palmer Muffly, M.S., *Assistant Professor* (retired) *of Home Economics* (1957), 1927.
Louise Martin Mullan, B.S., *Administrative Dietitian, University Hospital* (1962), 1961.
Foster Glenn Mullenax,* B.S.Agr., *State Extension Radio-Television Editor, Cooperative Extension Service* (1953), 1950.
Robert Ferguson Munn, A.B., M.A., Ph.D., *Director of Libraries and Chairman of Library Science* (1957), 1952.
William Lester Musladin, Maj., USAF, B.S., M.S., *Assistant Professor of Air Science* (1962).
Robert Styring Mutch, B.S., M.D., *Clinical Instructor* (part-time) *in Medicine* (1961).
Chester William Muth, B.S., Ph.D., *Associate Professor of Chemistry* (1956), 1949.
Galen Sheets Myers,* B.S., M.S., *District Extension Agricultural Supervisor, Cooperative Extension Service* (1952), 1935.
Leroy Orner Myers, B.A., M.A., *Assistant Professor of Geography* (1948). (Resigned January 15, 1962).
Richard George Nadeau, B.S., M.S., *Research Assistant in Agricultural Biochemistry* (1962), 1958.
Victor Mario Napoli, M.D., *Assistant Professor of Pathology* (1962), 1961.
Oliver Meader Neal, Jr., B.S., Ph.D., *Associate Professor of Horticulture; Associate Horticulturist, Agricultural Experiment Station* (1959), 1942.
Charles David Neel, B.A., M.A., *Instructor in Speech; Studio Theatre Supervisor* (1960).
Elizabeth Brownfield Neel, *Administrative Assistant, Library* (1949), 1936.
Robert Hudkins Neff, B.S., M.S., Ed.D., *Assistant Professor of Education; Coordinator of Special Education* (1962), 1955.
Elmer Joseph Neidermeyer, Maj., B.S., *Executive Officer in Military Science* (1959). (Resigned August 20, 1962).
Stanley John Nels, B.S.J., *Associate University Editor* (1961), 1951.

Donald Earl Nelson, B.S., M.W.T., *Instructor in Wood Technology* (1961).
John W. Nelson, A.B., M.D., *Assistant Professor of Medicine; Chairman of Neurology* (1961).
Reid Marvin Nelson, B.S.I.E., *Instructor in Industrial Engineering* (1962).
Ernest Joseph Nesius,* B.S.A., M.S.A., Ph.D., *Dean, College of Agriculture, Forestry, and Home Economics; Director, Cooperative Extension Service* (1961), 1960.
Paul Emmett Nesselroad, B.S., M.S., *Assistant Agricultural Economist, Farm Management, Agricultural Experiment Station* (1959), 1954. (On leave to June 30, 1963).
Dorothy Ann Neubauer, R.N., *Head Nurse, Station* 31, *University Hospital* (1961).
Joseph Newhouse, B.S., M.S., *Assistant Professor of Economics and Finance; Pre-Commerce Adviser* (1962), 1955.
David Creel Nichols, II, B.S.J., M.A., *Instructor* (part-time) *in English; Research Assistant, Office of the President* (1960), 1959.
Betty June Nicholson, *Assistant Night Nursing Supervisor, University Hospital* (1962), 1961.
E. Grant Nine, A.B., M.A., *Instructor in Education; Principal, University High School* (1960), 1956.
Wilda Hoard Noel, B.S.H.E., *Executive Hosekeeper, Arnold Residence Hall* (1956), 1954.
Ruth Douglas Noer, B.S., M.S., *Professor of Home Economics* (1960), 1925.
Francena L. Nolan, B.S., M.S., Ph.D., *Director, Division of Home Economics; Professor of Home Economics* (1961).
Charles Norman, B.S., M.S., Ph.D., *Professor of Biology; Dairy Scientist, Agricultural Experiment Station* (1961), 1953.
William Laurus Northern,* B.S., M.Agr., *State Extension Dairy Specialist, Cooperative Extension Service* (1962), 1951.
David W. Northup, A.B., A.M., Ph.D., *Professor and Chairman of Physiology, Medical Center* (1949), 1935.
G. Robert Nugent, A.B., M.D., *Assistant Professor of Surgery, Division of Neurosurgery* (1961).
Carol Maureen O'Brien, B.S., *Staff Physical Therapist, University Hospital* (1962).
Frank Dennis O'Connell, B.S., M.S., Ph.D., *Associate Professor of Pharmacognosy* (1962), 1957.
James Pierce O'Leary, Jr., B.M.E., *Instructor in Mechanical Engineering* (1960).
Margaret Eloise Olexa, R.N., B.S., *Nurse, University Infirmary* (1960). (Resigned September 30, 1962).
Joseph Edward Oliver, B.A., M.D., *Instructor in Psychiatry* (1962).
Farrel John Olsen, Jr.,* B.S., M.S., Ph.D., *State Extension Agronomy Specialist, Cooperative Extension Service* (1961).
Norman Olaf Olson, D.V.M., *Professor of Veterinary Science; Veterinarian, Agricultural Experiment Station* (1948).
J. Estelle O'Malley, R.N., *Nurse, University Health Service Infirmary* (1960).
Elizabeth Jane Oman, B.A., *Teacher, University High School* (1962).
Angelo Joseph Orlandi, B.A., M.A., *Teacher, University High School* (1959).
Edwin Orr, B.S.M.E., *Superintendent of Utilities, Physical Plant* (1961), 1949.
C. Daniel O'Sullivan, B.S., M.S., *Assistant Director of Mountainlair* (1962).
Lester Lynn Ourth, M.A., Ph.D., *Assistant Professor of Psychology* (1962).
James Edwin Overberger, B.S., M.S., D.D.S., *Associate Professor of Dental Materials* (1962), 1957.
Mary Nadine Page, M.A., *Assistant Professor of English* (1946), 1925.
John H. Palacios, B.A., M.S.S.W., *Associate in Psychiatric Social Work* (1962).
Jerome F. Parmer, B.S.M.E., M.S.M.E., *Assistant Professor of Mechanical Engineering* (1960), 1957. (On leave of absence September 1, 1962-).
Dickson Ward Parsons, A.B., M.S., Ph.D., *Professor Emeritus of Agricultural Education* (1951), 1923.
Homer Patrick, B.S., M.A., Ph.D., *Professor and Chairman of Poultry Science; Poultry Husbandman, Agricultural Experiment Station* (1957).
Charles Darold Patterson, B.S., M.A., *Assistant Professor of Library Science* (1962).
Charles Edwin Patton, A.M., *Professor of Art* (1951), 1939.

Armine Deane Paul, B.S., Ph.D., *Associate Professor of Chemistry* (1961), 1955.
Helen Mary Pavlech, B.S., M.A., *Assistant in Microbiology, Medical Center* (1954), 1943.
Arthur Stephen Pavlovic, B.E.E., M.S., Ph.D., *Associate Professor of Physics* (1962), 1959.
Donald H. Paynter, *Chief Broadcast Engineer, Office of Educational Broadcasting* (1962).
Mary Jane Pearse, B.A., M.S., *Instructor in Physical Education* (1961), 1958.
Roger Waterman Pease, B.S., M.S., *Assistant Agricultural Economist, Agricultural Experiment Station* (1955), 1947.
Jeanne S. Peccianti, R.N., B.S., M.S., *Assistant Professor of Public Health Nursing* (1962).
Kenneth Earl Penrod, B.S., Ph.D., *Vice President–Medical Center; Professor of Physiology* (1959).
W. Clement Percival, B.S., M.S., Ph.D., *Assistant Dean, College of Agriculture, Forestry, and Home Economics; Director, Division of Forestry; Professor of Forestry; Forester, Agricultural Experiment Station* (1959), 1934.
Virginia Taylor Perry, A.B., M.A., M.S.L.S., *Chief Circulation Librarian, Library* (1954), 1946.
Jane Rhodes Pestun, B.M., M.M., *Instructor in Music* (1945), 1942.
Iland Dee Peters, A.B., M.S., *Associate Professor of Mathematics* (1957), 1941.
Mason Marcus Peterson, B.S.E.E., *Associate Professor of Electrical Engineering* (1948).
Thelma Rose Petracca, B.S., *Instructor in Medical Technology* (1961).
Helen Petrakis,* B.S.H.E., M.S., *District Extension Home Demonstration Supervisor* (1962), 1955.
Richard Joseph Petso, B.S., *Computer Programmer, Data Processing Center* (1962).
Helen Purinton Pettigrew, B.A., M.S., Ph.D., *Associate Professor of English* (1955), 1921.
Clifford N. Pfeltz, A.B., Ed.M., Ed.D., *Assistant Professor of Education* (1959). (Resigned September 1, 1962).
Philip A. Phar,* B.S., M.S., *State Extension Animal Husbandry Specialist, Cooperative Extension Service* (1961).
George Richard Phillips, *Photographer, Bureau of Public Information* (1954).
Herbert Charles Phillips, B.F.A., M.L., *Senior Research Analyst, Bureau for Government Research* (1961).
James Edward Phillips, A.B., D.D.S., *Assistant Professor of Oral Diagnosis* (1961), 1959.
Ross Alonzo Phillips, B.S.Agr., B.Agr.,Eng'g., M.S.Agr.Eng'g., *Assistant Professor of Agricultural Engineering; Assistant Agricultural Engineer, Agricultural Experiment Station* (1955).
Ruth Marjory Phillips, A.B., M.D., *Clinical Assistant Professor of Pediatrics* (1961).
Edward Donn Piatt, B.S., M.D., *Instructor in Medicine* (1961).
Justus Courtland Pickett, B.S., M.D., *Clinical Professor and Chairman of Orthopedic Surgery* (1960).
William August Pierce, A.B., M.A., Ph.D., *Professor of Mathematics* (1961). (Resigned September 1, 1962).
William Bryan Pierce, Jr., Maj., B.S., M.L., *Assistant Professor of Air Science* (1959). (Resigned August 3, 1962).
Gordon Marshall Pitts, B.A., M.A., Ph.D., *Assistant Professor of English* (1960).
Charles Lloyd Pitzer, Jr., A.A., B.S., M.S., *Instructor* (part-time) *in Chemistry* (1962).
Helen Lester Plants, B.S.C.E., M.S.C.E., *Assistant Professor of Theoretical and Applied Mechanics; Editor, Engineering Experiment Station* (1960), 1947.
Berta Gertrud Plaut, B.A., B.S.L.S., *Senior Catalogue Librarian, Library* (1953).
Max Plutzky, M.D., *Instructor in Psychiatry* (1962).
George Gordon Pohlman, B.S., M.S., Ph.D., *Professor and Chairman of Agronomy and Genetics; Agronomist, Agricultural Experiment Station* (1938), 1930.
Stanley Anthony Poleway, D.D.S., *Professor and Chairman of Pedodontics* (1959).

Peter Popovich, A.B., B.S., M.S., Ph.D., *Assoicate Professor of Chemistry; Premedical Adviser* (1960), 1946.

John Joseph Porter, B.S., *Assistant Manager, University Book Store* (1961), 1952.

Ira Deward Porterfield, B.S., M.S., Ph.D., *Professor and Chairman of Dairy Science; Dairy Scientist, Agricultural Experiment Station* (1956), 1946. (Resigned June 30, 1962).

Donald Charles Portnoy, B.S., M.A., *Assistant Professor of Music* (1962), 1959.

Oleta Reed Post, B.S., M.A., *Instructor in Education; Teacher, University High School* (1953).

Maurice Green Powell, B.S., M.S. Ph.D., *Assistant Professor* (part-time) *of Chemistry, Parkersburg Branch* (1962).

Blanche Elizabeth Price, A.B., M.A., *Assistant Professor of Home Economics* (retired) (1959), 1945.

Mary McKinnon Price, M.A., *Instructor in English* (1962).

Paul Holland Price, A.B., M.S., Ph.D., *Director and State Geologist; Professor of Geology* (1960), 1930.

Cecil Benjamin Pride, A.B., M.D., *Clinical Professor of Surgery* (1960), 1926. (Deceased November 12, 1962).

Cletis Pride, B.S.J., *Associate Director of Bureau of Public Information; Director, University News Service* (1960), 1953.

Maynard Prince Pride, A.B., M.D., *Clinical Assistant Professor of Surgery* (1960), 1949.

Richard Lee Prillaman, Capt., B.S., *Assistant Professor of Military Science* (1960).

Karen Mae Ptak, B.S., *Medical Dietitian, University Hospital* (1962).

Bertha Browning Purinton, A.B., A.M., *Assistant Registrar* (retired) (1949), 1919.

John Pushkarsh, Jr., A.B., A.M., *Instructor in Russian* (1955).

Eliza Jane Queen, *Social Director, Terrace Residence Hall* (1960).

David Oliver Quinn,* A.B., M.S., *Extension Plant Pathologist and Entomologist, Cooperative Extension Service* (1956), 1953.

Jose M. Quintero, M.D., *Assistant Professor of Medicine and Chairman of the Allergy Division* (1961).

Hadi Rahnamoon, M.D., *Resident in Obstetrics and Gynecology* (1962).

Lewis Ira Railing, Geol.Engr., *Cost Research Engineer* (1962).

Allen Huff Rakes, B.S., M.S., *Assistant Professor of Dairy Science; Assistant Dairy Scientist, Agricultural Experiment Station* (1960).

Betty Lou Ramsey,* B.S.H.E., M.S., *Home Furnishings Specialist, Cooperative Extension Service* (1960), 1956.

Evelyn Hill Randolph, B.S., M.S., *Cataloging Assistant* (part-time), *Medical Center Library* (1962), 1959.

Kenneth Vincent Randolph, B.S., D.D.S., *Dean, School of Dentistry; Professor of Operative Dentistry* (1958), 1957.

Richard Dale Randolph, B.A., *Employment Interviewer, Personnel Office* (1962).

Robert Edward Rankin, B.A., M.A., Ph.D., *Associate Professor of Psychology* (1961), 1954.

Elizabeth Frost Reed, A.M., *Assistant Professor Emeritus of English* (1953), 1919.

James Cornelius Reed, *Supervisor, Purchasing and Inventory, Comptroller's Office* (1953), 1946.

Perley Isaac Reed, Ph.B., A.B., A.M., Ph.D., *Director and Professor Emeritus of Journalism* (1958), 1920.

Ronald Michael Reed, B.A., M.A., *Instructor in Speech* (1961).

William Woodworth Reed, Jr., Maj., B.A., *Associate Professor of Military Science* (1959).

Albert Moore Reese, A.B., Ph.D., *Professor Emeritus of Zoology* (1946), 1907.

Florence K. Reese, A.B., B.S.L.S., M.A., *Professor of Library Science* (1961), 1935.

Grady G. Reese, Capt., A.B., *Assistant Professor of Military Science; Supply Officer* (1962), 1961.

Robert Leslie Reid, B.Sc., B.Agr., Ph.D., *Assistant Professor of Agricultural Biochemistry; Assistant Agricultural Biochemist* (1960), 1957.

William Henry Reid, B.S.F., M.F., *Associate Professor of Forest Utilization; Associate Forester, Agricultural Experiment Station* (1951). (Resigned August 1, 1962).

Janet Elizabeth Remington, B.M., *Instructor* (part-time) *in Music* (1954). (Resigned June 1, 1962).
Pauline Dawson Renforth, R.N., *Assistant Relief and Night Supervisor, University Hospital* (1960).
Robert Summers Reppert, B.S., *Geologist, Engineering Experiment Station* (1959). (Resigned March 16, 1962).
Harvey Nixon Rexroad, B.S.E.E., M.S., Ph.D., *Professor of Physics* (1962), 1947.
Randall William Reyer, A.B., M.A., Ph.D., *Associate Professor of Microanatomy and Organology* (1957).
Betty Hicks Reynolds, B.S., *Instructor in Medical Technology* (1962).
Edwin W. Reynolds, Col., B.S., *Professor of Military Science* (1962).
Michael Morgan Reynolds, A.B., M.S., M.A., *Assistant Director of Libraries* (1957).
Jackson C. Rhudy, B.S., M.S.W., *Assistant Professor of Social Work* (1962), 1959.
George Wesley Rice, B.A., M.A., Ph.D., *Assistant Professor of Political Science* (1960).
Patricia Cook Rice, B.A., *Instructor* (part-time) *in Sociology* (1962).
Anthony Wayne Richards, B.S., *Research Assistant in Agricultural Biochemistry, Agricultural Experiment Station* (1962).
Phyllis Shufflebarger Richardson, *Head Nurse, Outpatient Department, University Hospital* (1961), 1960.
John Harrison Rietz, M.Sc., D.V.M., *Professor Emeritus of Animal Pathology* (1948), 1927.
Lorraine Beverly Riggleman, B.S., *Teacher* (part-time), *University High School* (1962).
Robert Allen Robards, B.S.B.A., *Assistant to the Director of Business Affairs, University Apartment Manager* (1960).
Carl Leo Roberts, *Equipment Custodian, Athletics* (1947).
Elizabeth Ann Roberts,* B.S.H.E., M.S., *Extension Foods and Nutrition Specialist, Cooperative Extension Service* (1956), 1953.
Evan Owen Roberts, A.B., M.A., Ph.D., *Professor of Economics and Marketing* (1953), 1939.
Louise Boggess Roberts, B.S., M.A., *Instructor in Education* (retired); *Teacher* (retired), *University High School* (1960), 1928.
William E. Roberts, Col., B.S., *Professor of Military Science* (1959). (Resigned June 6, 1962).
Jack Sutton Robertson, B.S., M.S., *Instructor* (part-time) *in Chemistry* (1962), 1959.
J. Ben Robinson, D.Sc., D.D.S., *Dean Emeritus, School of Dentistry* (1958), 1953.
Robert Leo Robinson, A.B., M.A., Ph.D., *Assistant Professor of Pharmacology* (1961), 1959.
Ruth Eleanor Robinson, A.B., M.A., *Manager, University Book Store* (1944), 1939.
Satyabhlashi Parsram Rochlani, M.B., B.S., *Instructor in Pathology* (1962).
Walter Harrison Rockenstein, A.B., S.T.B., S.T.M., *Instructor in Speech* (1956).
Ira Errett Rodgers, A.B., *Associate Professor Emeritus of Physical Education* (1962), 1920. (Deceased February 22, 1963).
Earl G. Rogers, B.A., *Superintendent of Custodial Services, Physical Plant* (1960).
Kate Meredith Roller, A.B., M.A., *Instructor* (retired) *in Education; Teacher* (retired), *University High School* (1955), 1927.
Raymond Sydney Rollins, Lt.Col., B.C.E., M.C.E., *Director of Education in Air Science* (1959). (Resigned August 25, 1962).
Stanley Edward Romanoski, B.S., M.S., *Instructor in Physical Education; Head Coach, Cross-Country and Track* (1957).
Kurt Rosenbaum, B.A., Ph.D., *Assistant Professor of History* (1962).
Lois Elizabeth Rosier, R.N., *Head Nurse, Operating Room, University Hospital* (1960).
Billy J. Ross, *Research Analyst, Bureau for Government Research* (1961).
William Robert Ross, M.A., *Assistant Professor of Political Science* (1958), 1939.
Philip Jean Rossana, B.S.E.E., *Instructor in Electrical Engineering* (1962).
Kathleen Guerrieri Rousseau, B.M., M.A., *Instructor in English* (1960).
Leonard I. Ruchelman, B.A., *Assistant Professor of Political Science* (1962).

Eugene E. Ruley, Geol.E., M.S.Geol.E., *Petroleum Research Engineer, Engineering Experiment Station* (1960).
Charles Michael Runner, *Stationary Engineer* (retired) *in Mechanical Engineering* (1950), 1919.
Everett Roy Russell, S/Sgt., *Instructor in Military Science* (1959).
Byron Edward Ruth, B.S.C.E., M.S.C.E., *Instructor in Civil Engineering* (1961).
Richard Neil Ryan, B.S., M.A., *Teacher, University High School* (1959).
Aaron Sacks, A.B., M.S., *Lecturer* (part-time) *in Social Group Work* (1956).
Mabel Kersey Samuel, B.S., *Dietitian and Executive Housekeeper, Men's Residence Hall* (1946).
Ernest James Sandy, B.S., *Assistant Professor of Mining Engineering* (1957), 1946.
John Patrick Santry, Maj., B.S., *Associate Professor of Military Science* (1959). (Resigned June 16, 1962).
Igor V. Sarkissian, B.S., M.S., Ph.D., *Associate Professor of Genetics; Associate Geneticist, Agricultural Experiment Station* (1962).
Viken Sassouni, Dent. Surg., M.Sc., D.Sc., D.D.S., *Professor and Chairman of Orthodontics* (1960).
Robert Earl Sausen, M.S.D., D.D.S., *Professor and Chairman of Operative Dentistry* (1958).
LeRoy Hallowell Saxe, Jr., B.S., M.A., Ph.D., *Professor of Pharmacology and Pharmacy* (1962), 1955.
Greek Sayre, A.B., M.A., *Assistant Professor Emeritus of English* (1957), 1918.
George Etheridge Schafer, B.M., M.M., Ph.D., *Professor of Music and Chairman of Graduate Studies* (1962), 1954.
James Hamilton Schaub, B.S.C.E., S.M.C.E., Ph.D., *Professor and Chairman of Civil Engineering* (1960).
Bernhard Scher, B.S., M.A., M.S.S.W., D.S.W., *Professor and Chairman of Social Work* (1961), 1960.
Jean Starr Scher, B.A., M.S., *Junior Gifts and Exchange Librarian, Medical Center Library* (1962).
John Gustave Scherlacher, B.S., M.Ed., *Professor and Chairman of Recreation; State Recreation Consultant* (1960), 1947.
Regis Daniel Schiffbauer, B.S., M.A., *Production Supervisor, Office of Educational Broadcasting* (1962), 1960.
Bernard Burton Schlanger, B.A., M.A., Ph.D., *Professor of Speech; Director of Speech and Hearing Clinic* (1959), 1958. (Resigned July 20, 1962).
Joseph William Schmidt, Jr., B.S., M.S., *Instructor in Industrial Engineering* (1962).
Gerald L. Schneberger, A.B., M.S., *Research Assistant in Agricultural Biochemistry, Agricultural Experiment Station* (1962), 1961.
Victor Lloyd Schneider, B.A., M.A., M.S.W., *Assistant Professor of Social Work* (1962).
James Thomas Schollaert, B.A., M.A., *Instructor in English* (1962).
Oscar Edmund Schubert, B.S.Agr., M.S., Ph.D., *Professor of Horticulture; Horticulturist, Agricultural Experiment Station* (1961), 1949.
Mary-Jane Schuster, A.B., *Counselor to Women Students* (1962).
Henry Charles Schwartz, A.B., A.M., Ph.D., *Professor of Romance Languages, Parkersburg Branch, W.V.U.* (1961). (Resigned May 31, 1962).
Albert John Schwing, Jr., SFC, *Chief Clerk, Military Science Instructor Group* (1960).
Eion George Scott, B.Sc., Ph.D., *Professor and Chairman of Horticulture; Horticulturist, Agricultural Experiment Station* (1962).
Jane C. Scott, B.M., A.B., M.Mus., *Assistant Professor of Music Education* (1958).
Raymer Egbert Seaman, *Instructor Emeritus in Foundry Practice and Woodworking* (1945), 1912.
Ralph William Seeger, A.B., *Engineer-Geologist, Engineering Experiment Station* (1957). (Resigned July 1, 1962).
John Edward Seknicka, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1961).

Leon Zee Seltzer, Ph.C., B.S.E., *Professor and Chairman of Aero-Space Engineering; Aero-Space Engineer, Engineering Experiment Station* (1949).
Alice Semon, B.S., M.A., *Instructor in Education; Teacher, University High School* (1962), 1939.
John Semon, A.B., M.S., *Associate Professor of Physical Education; Chairman of Physical Education for Men* (1955), 1943.
Santino Thomas Serpento, B.S., M.A., *Assistant Director of Personnel, Personnel Office* (1960).
Ronald G. Severs, A.B., B.S., M.D., *Resident in Surgery* (1961).
James N. Shafer, A.B., M.A., Ph.D, *Associate Professor of Psychology* (1959), 1953. (On leave of absence 1962-63).
Raymond Edwin Shafer, B.S.I.E., M.S.I.E., *Professor and Chairman of Industrial Engineering* (1957), 1949.
Dallas Bert Shaffer, B.A., M.A., *Instructor in History, Parkersburg Branch* (1962).
Hubert Adams Shaffer, B.S., M.D., *Consulting Radiologist, University Health Service; Clinical Associate Professor of Radiology and Anatomy* (1961), 1949.
Kenneth W. Shaffer, B.A., M.A., *Adviser, Off-Campus Housing, Student Affairs* (1961).
Harold Joseph Shamberger, A.B., M.P.A., *Assistant to the President* (1960), 1949.
Stanley R. Shane, B.A., M.D., *Research Associate in Medicine* (1962), 1961.
George Sharpe,* B.S.Agr., M.S., *State Extension Soil Conservation Specialist, Cooperative Extension Service* (1944), 1929.
Charles Jack Sheehan, B.S., M.A., *Veterans' Coordinator and Coordinator of Scholarships* (1957), 1955.
Stephanie Shehatovich, *Master Teacher in Piano, University Extension Division* (1960).
Damon Charles Shelton, B.S.A., M.S., Ph.D., *Associate Professor of Biochemistry, Medical Center* (1960), 1953.
Vernon Morris Sheppard, Jr.,* B.S., M.S., *Extension Economist, Cooperative Extension Service* (1958). (On leave September 1, 1962—June 30, 1963).
David Connell Sherren, B.S.M.E., *Instructor in Mechanical Engineering* (1961).
Charles William Shetler, B.A., M.A., *Curator, West Virginia Collection, Library* (1950).
Harriett M. Shetler, A.B., *Executive Secretary, YWCA* (1962).
Soh Chao Shih, B.S., M.S., Ph.D., *Research Associate in Agronomy and Genetics* (1961).
John Edward Shockey, B.S., *Instructor in Physical Education; Freshman Football Coach* (1960), 1950.
Wilson Porter Shortridge, A.B., A.M., Ph.D., *Professor Emeritus of History* (1951), 1922.
Mary Ethel Shoup, B.S., M.S., *Instructor in Medical-Surgical Nursing* (1961).
Robert Wesley Shreeves, B.S., M.S., Ph.D., *Associate Professor of Theoretical and Applied Mechanics* (1961).
Wihbi AbdulMunim Shu'Ayb, M.D., *Second-Year Resident in Surgery* (1961).
James Robert Shumaker, B.S., M.S., *Instructor in Horticulture; Assistant in Horticulture, Agricultural Experiment Station* (1958).
Fred B. Silberstein, B.A., M.A., Ph.D., *Assistant Professor of Sociology* (1958), 1955.
Carroll Orr Simmons, *Assistant Housekeeper, University Hospital* (1961).
Charles Scott Simmons, *Conference Coordinator* (1962), 1947.
Howard Perry Simons, B.A., M.Sc., Ph.D., *Professor and Chairman of Chemical Engineering; Chemical Engineer, Engineering Experiment Station* (1959), 1939.
Armand Edwards Singer, A.B., A.M., Ph.D., *Professor of Romance Languages* (1960), 1940.
Leonard Marion Sizer, B.A., B.A., Ph.D., *Associate Professor of Rural Sociology; Associate Rural Sociologist, Agricultural Experiment Station* (1959), 1955.
Charles Preston Skaggs, B.S., C.P.A., *Lecturer in Accounting* (1954).
Elizabeth Summers Skaggs, R.N., B.S., *Assistant Director of Nursing Service* (1960).
John S. Skocik, Jr., B.S., M.S., *Instructor in Mathematics* (1962), 1960.
John Madison Slack, *Professor and Chairman of Microbiology* (1949), 1946.

Clark Kendall Sleeth, A.B., B.S., M.D., *Dean, School of Medicine; Professor of Medicine* (1961), 1935.
Robert Dean Slonneger, B.S.M.E., M.S.M.E., *Associate Professor of Mechanical Engineering; Associate Mechanical Engineer, Engineering Experiment Station* (1955), 1954.
Cora Sue Smallwood, B.S., *Assistant Director, Dietetic Department, University Hospital* (1962), 1960.
Clement Art Smith, A.B., M.D., *Clinical Associate Professor of Gross Anatomy* (1962), 1960.
Fred Manning Smith, A.B., B.A., M.A., Ph.D., *Professor Emeritus of English* (1945), 1922.
Howard Carrollton Smith, B.S.A., *Superintendent of Poultry Science Farm* (1921).
Marion Judson Smith, B.S.E.E., M.S.E.E., *Professor of Electrical Engineering* (1956), 1954.
Nelson Stuart Smith, Jr., B.S.E.E., M.S.E.E., *Assistant Professor of Electrical Engineering* (1958), 1956.
Paul Morrow Smith, B.S., *Superintendent of Dairy Processing and Instructor in Dairy Science* (1959).
Robert Leo Smith, B.S., M.S., Ph.D., *Assistant Professor of Wildlife Management; Assistant Forester, Agricultural Experiment Station* (1958).
Sara Rector Smith, A.B., M.A., Ph.D., *Associate Professor of History, Parkersburg Branch* (1961), 1946.
Virginia Audery Smith, M.S.W., *Social Worker, University Hospital Social Service* (1962).
Charles R. Smoot, B.S., Ph.D., *Assistant Professor of Chemistry, Parkersburg Branch* (1961).
Carolyn Marie Snider, B.S., *Medical Technologist, University Hospital* (1962).
Robert Bruce Snider, M/Sgt., *Administrative Supervisor, Military Science* (1959). (Resigned September 30, 1962).
Donald Lane Snodgrass, *Nuclear Engineering Technician in Chemical Engineering; Supervisor of Cobalt-60 Facility* (1960).
Robert Douglas Snyder, B.S.M.E., M.S.M.E., *Instructor in Theoretical and Applied Mechanics* (1961).
Elaine G. Soleymani, M.D., *Intern, University Hospital* (1962).
Joseph Alvin Solomon, B.S., M.S., Ph.D., *Coal Research Engineer, School of Mines* (1962).
Benjamin Sonnenschein, Maj., USAF, B.S., *Assistant Professor of Air Science* (1962).
Ruth J. Sorge, B.S., M.Ed., *Supervisor of Operating Rooms, University Hospital* (1960).
Joseph Edward Spafford, B.S.E.E., *Superintendent of Maintenance, Physical Plant* (1962).
Robert Clifton Spangler, A.B., M.A., Ph.D., *Professor Emeritus of Botany* (1955), 1914.
Wayne Campbell Spiggle, A.B., M.D., *Resident in Medicine* (1962).
Claude Carl Spiker, A.B., M.A., Ph.D., *Professor Emeritus of Romance Languages* (1954), 1913.
Phyllis Vannoy Spiker, B.S., *Medical Technologist, University Hospital* (1962), 1957.
Elizabeth Carroll Spindler, B.A., M.A., *Instructor in English* (1961), 1944.
Josephine Brown Spindler, *Social Director, Women's Residence Hall* (1962), 1960.
Robb Spaulding Spray, Ph.D., *Professor Emeritus of Bacteriology and Public Hygiene* (1946), 1921.
Julia Ann Sprouse, B.S., *Medical Technologist, University Hospital* (1962).
William Squire, B.S., M.A., *Professor of Aero-Space Engineering* (1961).
Raymond Douglas Stallard, A.B., M.A., *Instructor in Speech; Director of Intercollegiate Forensics* (1961).
Elizabeth Mattingly Stalnaker, A.B., A.M., Ph.D., *Professor Emeritus of Psychology* (1953), 1925.
Eugene Leo Staples, B.S., M.H.A., *Director of University Hospital* (1960).
John F. Stasny, A.B., M.A., *Instructor in English* (1955).

Edward M. Steel, Jr., A.B., M.A., Ph.D., *Associate Professor of History* (1956).
Pauline Fae Steele, B.S., B.Sc., M.A., *Assistant Professor and Director of Dental Hygiene* (1961).
Forrest Wilbur Stemple, A.B., M.Sc., Ph.D., *Professor Emeritus of Education* (1952), 1916.
Jacqueline Sue Stemple, B.S., *In-Service Education Supervisor, Nursing Service, University Hospital* (1960).
Ruth Stemple, B.S., M.S., *Head of Agriculture-Engineering Library* (1960), 1955.
Frank Herbert Stevens, B.S., D.D.S., *Instructor in Endodontics* (1962).
Helen Marie Stevens, B.S., *Nursing Supervisor, Obstetrics and Pediatrics* (1960).
Guy Harry Stewart, B.S.J., M.A., Ph.D., *Associate Professor of Journalism* (1960), 1949.
Gwendolyn Jones Stewart, B.S., M.S., *Research Assistant in Microbiology, Medical Center* (1960), 1953.
Irvin Stewart, LL.B., B.A., M.A., Ph.D., LL.D., Litt.D., *Professor of Political Science* (1958), 1946. (On leave of absence until September, 1963).
Joseph K. Stewart, Ph.D., *Professor and Chairman of Mathematics* (1960), 1930.
Glenn Edward Steyers, B.S., M.S., *Associate Professor of Horticulture; Associate Horticulturist, Agricultural Experiment Station; University Landscape Architect* (1960).
John Clifford Stickney, B.S., M.S., Ph.D., *Professor of Physiology* (1957), 1940.
Robert Stilwell, B.A., M.A., Ph.D., *Professor of German; Chairman of Foreign Language Departmental Committee; Director of NDEA Summer Language Institute* 1961- (1960), 1947.
Oscar C. Stine, Ph.B., Ph.D., *Consultant in Agricultural Economics, Agricultural Experiment Station* (1961).
Anthony H. Stocks, A.A., B.A., M.A., *Assistant Professor of Economics* (1961).
Stanley Harold Stolar, M.D.C.M., *Instructor in Anesthesiology* (1962).
Lowry McElvaine Stoops, A.B., *Assistant Director of Athletics* (retired) (1962), 1926.
Benjamin M. Stout, A.B., M.D., *Physician, University Health Service; Clinical Instructor* (part-time) *in Medicine* (1960), 1957.
John Milton Strait, M.E.E.E., M.E., *Associate Professor of Mechanical Engineering* (retired) (1961).
Perry Daniel Strausbaugh, Ph.D., *Professor Emeritus of Botany* (1948), 1923.
Robert Cowan Strong, Jr., B.S., M.S., B.Ed., *Instructor in Mathematics* (1957).
Edward G. Stuart, B.S., M.A., Ph.D., M.D., *Associate Professor of Pathology; Assistant Dean, School of Medicine* (1960).
Albert Lee Sturm, A.B., A.M., Ph.D., *Professor of Political Science* (1951), 1946. (Resigned September 1, 1962).
Henry Lee Sublett, Jr., A.B., M.Ed., Ed.D., *Assistant Professor of Education* (1961). (Resigned September 1, 1962).
Eleanor Brady Suhrie, B.S., M.Litt., *Assistant Professor of Medical-Surgical Nursing* (1961). (Resigned June 30, 1962).
Mary Elizabeth Sullivan, *Staff Assistant, Registrar's Office* (1960), 1924.
Festus Paul Summers, A.B., A.M., Ph.D., *Professor of History* (1947), 1932.
William Robert Summers, Jr., B.J., M.A., *Associate Professor of Journalism* (1960), 1952.
Ellen Louise Sumner, *Chief Reference Librarian* (1962).
Hiroshi Suzuki, M.D., *Teaching Fellow in Pathology* (1961). (Resigned June 30, 1962).
Robert Earl Swartwout, B.S.E.E., M.S.E.E., Ph.D., *Associate Professor of Electrical Engineering* (1962).
John Bradford Swecker, B.S., M.S., *Assistant Professor of Agricultural Education* (1956). (Resigned December 4, 1961).
Robert Frederick Sweitzer, B.S.Agr., *Superintendent of Horticulture Farm* (1960).
Joseph Paul Talerico, A.B., M.A., *Instructor in Education; Teacher, University High School* (1950), 1948.
Thomas Joseph Tarnay, A.B., M.D., *Surgical Fellow, Fourth-Year Surgical Resident* (1962), 1960.

Carl B. Taylor,* A.B., M.A., *Assistant Professor of Family Life, Home Economics; Assistant Family Life Specialist, Cooperative Extension Service* (1961).
Harley Ustus Taylor, Jr., B.A., M.A., *Instructor in German and Assistant in Humanities* (1951), 1949.
Jack Dean Taylor, B.S., M.A., *Instructor in Education* (1958), 1957.
Leland Hart Taylor, B.S., M.S., Sc.D., *Professor of Zoology* (1939), 1922.
Mary Coddington Templeton, A.B., M.S., *Assistant in Agricultural Economics, Agricultural Experiment Station* (1955).
Roger D. Teter, B.S.M.E., *Instructor in Theoretical and Applied Mechanics* (1959). (Resigned May 31, 1962).
W. David Teter, B.S.M.E., *Instructor in Mechanical Engineering* (1961).
Willard Dale Thacker, B.S., *Chief Pharmacist, University Hospital* (1960).
Ralph Hough Theophilus, B.S.E.E., Litt.M., M.Ed., *Associate Professor of Electrical Engineering* (1956).
Anna Mae Thomas, *Social Director, Arnold Residence Hall* (1962).
Arthur Raymond Thomas, A.B., Sc.M., Ph.D., *Associate Professor of Psychology* (1962), 1956.
Barbara S. Thomas, B.S., M.A., *Instructor in Speech* (1961).
Charles Danser Thomas, A.B., M.S., Ph.D., *Professor and Chairman of Physics* (1956), 1931.
Garold Ralph Thomas, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1961). (Resigned May 31, 1962).
Kenneth E. Thomas, B.A., M.D., *Surgical Resident, University Hospital* (1961).
Robert Hamilton Thomas, B.S.Agr., M.A., Ph.D., *Associate Professor of Dairy Science; Associate Dairy Scientist, Agricultural Experiment Station* (1958).
C. Truman Thompson, B.S., A.B., M.D., *Clinical Assistant Professor of Obstetrics* (1960).
James Howard Thompson, A.B., M.A., Ph.D., *Professor of Economics; Director, Bureau of Business Research* (1958), 1948.
Patrick John Thompson, *Business Office Manager, University Hospital* (1961).
Gordon Rudolph Thorn, A.B., M.A., *Assistant Director of Student Affairs; Head Resident, Men's Hall* (1957).
June Metz Thorn,* B.S., M.S., *State Extension 4-H and YMW Programs Leader, Cooperative Extension Service* (1958), 1945.
Martha Talman Thorn, B.S., *Instructor in Physical Education* (1962), 1960.
Lawrence Blair Thrush, A.B., M.D., *Clinical Instructor in Surgery* (1961).
George E. Toben, M.S., *Professor of Agricultural Economics in Farm Management; Agricultural Economist in Farm Management, Agricultural Experiment Station* (1960), 1946.
Robert John Tolbert, B.S., B.A., Ph.D., *Associate Professor of Biology* (1959).
George Tolstoi, M.D., *Clinical Assistant Professor of Pathology* (1961).
Patricia Anthony Tork, A.B., M.S., *Assistant to the Dean and Professor of Physical Education* (1960), 1943.
Celia Jeanette Tower, A.B., M.A., *Instructor in English* (1957).
Edwin C. Townsend, B.S., *Staff Assistant, Data Processing Center* (1960).
Richard W. Townsley, Capt., B.S., *Assistant Professor of Military Science* (1961).
Martha Rector Traxler, *Chief Clerk* (retired), *College of Agriculture, Forestry, and Home Economics and Agricultural Experiment Station* (1962), 1927.
Charles Edward Triona, M/Sgt., *Instructor in Military Science* (1959).
Robert Russell Trotter, B.A., B.S., M.D., *Associate Clinical Professor of Surgery; Chairman, Division of Ophthalmology* (1961).
Rodney Phillip True, A.B., Ph.D., *Professor of Plant Pathology; Plant Pathologist, Agricultural Experiment Station* (1955), 1949.
Earl Haven Tryon, B.S., M.S., Ph.D., *Professor of Silviculture; Silviculturist, Agricultural Experiment Station* (1952), 1945.
Charles Edward Tupes, B.S.I.E., *Analyst, Physical Plant* (1961).
Bird Margaret Turner, Ph.D., *Professor Emeritus of Mathematics* (1947), 1923. (Deceased September 5, 1962).
Bradford Tye, B.S., M.S., *Instructor in Mathematics, University Extension Division* (1949).

Benjamin Harrison Ulrich, Jr., B.S.A.E., M.S.A.E., *Associate Professor of Aero-Space Engineering; Associate Aero-Space Engineer, Engineering Experiment Station* (1955), 1951.

Valentin Ulrich, A.B., Ph.D., *Assistant Professor of Genetics; Assistant Geneticist, Agricultural Experiment Station* (1957).

Carole Jean Vacher, B.A., M.A., *National Foundation Coordinator* (1962).

C. Gregory VanCamp, A.B., *Director of Educational Broadcasting* (1960).

Elizabeth Ruth Vanderhorst, R.N., B.S.N., M.S., *Instructor in Psychiatric Nursing* (1962).

Willem Adolph van Eck, B.S.Trop.For., M.S., Ph.D., *Assistant Professor of Agronomy; Assistant Agronomist, Agricultural Experiment Station* (1957).

Audrey Howard VanLandingham, B.S., M.S., Ph.D., *Director of the Agricultural Experiment Station; Associate Dean, College of Agriculture, Forestry, and Home Economics* (1959), 1929.

Edward Jerald Van Liere, M.S., M.D., Ph.D., Litt.D., *Dean Emeritus of Medicine; Professor of Physiology; Research Professor of Obstetrics* (1961), 1921.

Paul Van Lith, M.D., *Clinical Assistant Professor of Medicine* (1961).

Betty Jane Veach, B.S.N.Ed., *Surgical Supervisor, Nursing Service Department, University Hospital* (1961).

Herbert Abraham Veach, T/Sgt., *Personnel NCO in Air Science* (1961).

Collins Veatch, B.S., M.S., Ph.D., *Professor of Agronomy; Agronomist, Agricultural Experiment Station* (1959), 1945.

Charles Henry Vehse, Sc.B., M.S., Ph.D., *Professor of Mathematics* (1947), 1929.

William Everett Vehse, B.A., M.S., Ph.D., *Assistant Professor of Physics* (1961).

Marvin Lewis Vest, B.S., M.S., A.M., Ph.D., *Professor of Mathematics* (1955), 1931.

Michael Anthony Viggiano, A.B., M.S., M.D., M.P.H., *Lecturer in Microbiology and Pharmacy* (1962), 1947.

Vern Hargrave Vincent, B.B.A., M.B.A., Ph.D., *Professor of Accounting* (1957).

Walter H. Voight, B.S., *Instructor in Psychology* (1962), 1961.

Mayme Elizabeth Waddell, B.S., M.A., *Director of Residence Halls* (retired), (1956), 1930.

Rebecca Estra Wade, A.B., M.A., *Assistant Professor of Romance Languages* (1955), 1945.

Charles Richard Wagner, A.B.Arch., *University Architect, Physical Plant* (1961).

William V. Wagner, B.S., M.A., Ed.D., *Assistant Professor of Education* (1960), 1959.

Walter Hamilton Walker, A.B., B.S., M.A., Ph.D., *Director, Kanawha Valley Graduate Center of W.V.U.; Lecturer in Chemistry* (1960).

William Nelson Walker, Jr., A.B., B.S., M.D., *Clinical Instructor in Surgery* (1961).

Roy Emil Wall, *Associate Illustrator in Photography and Illustration in Medical Center* (1959).

Thomas Joseph Wall, B.S., M.Litt., *Director of Personnel, University Personnel Department* (1960).

Emily G. Wallace, R.N., *General Duty Nurse, University Infirmary* (1959).

Charles Ernest Walls, *Laboratory Assistant and Mechanician in Chemical Engineering* (1947), 1938.

Richard Edison Walters, B.S.A.E., *Instructor in Aero-Space Engineering* (1960), 1959.

James Henry Walthall, B.S., *Assistant Football Coach; Instructor in Physical Education* (1960).

Benjamin W. Wamsley,* A.B., B.S., *State Extension Animal Husbandry Specialist, Cooperative Extension Service* (1957), 1948.

Jane Hui Wang, M.D., *Resident, Medical Center* (1962).

Ida Frances Ward, A.A., B.S.J., *Lecturer* (part-time) *in Journalism* (1962).

George Samuel Warden, B.S., *Assistant in Dairy Science* (1962).

Herbert E. Warden, B.S., M.D., Ph.D., *Professor of Surgery* (1962), 1960.

Juanita Ruth Ware, R.N., *Night Assistant Nursing Supervisor* (1962), 1960.

Richard M. Ware, A.B., M.A., *Football End Coach; Instructor in Physical Education* (1962).

Charles Henry Warner, B.S.M.E., M.S.M.E., *Assistant Professor of Mechanical Engineering* (1960), 1955. (Resigned May 31, 1962).

H. Lynn Warner, A.B., M.A., *Mechanician, Agricultural Sciences Building* (1961).

Mary Melissa Washburn,* *Assistant to the Director, Cooperative Extension Service; Staff Assistant, College of Agriculture, Forestry, and Home Economics* (1962), 1934.

H. Waldo Wasson, B.S., M.A., Ph.D., *Professor of Speech* (1962).

James Allen Wasson, B.S., M.S., *Assistant Professor of Mining Engineering* (1960).

James Verne Watkins, B.S., *Assistant to the Director of Student Affairs* (1962), 1959.

Sharon Watring, B.S., *Medical Supervisor, University Hospital* (1961), 1960.

Leighton Guilford Watson,* A.B., *Head, Communications and Visual Aids; State Extension and Agricultural Experiment Station Editor, College of Agriculture, Forestry, and Home Economics* (1962), 1938.

Ray Howard Watson, B.A., M.S., *Assistant Football Coach; Instructor in Physical Education* (1960).

Daniel Thomas Watts, A.B., Ph.D., *Professor and Chairman of Pharmacology* (1953).

Royce Jackson Watts, B.S., M.S., *Head, Office of Business Relations and Records; Assistant Professor of Statistics, College of Agriculture, Forestry, and Home Economics* (1961), 1955.

Charles Edward Weakley, Jr., A.B., M.A., *Associate Agricultural Biochemist Emeritus, Agricultural Experiment Station* (1955), 1907.

George William Weaver, B.S.M.E., M.S.M.E., *Assistant to the Dean, College of Engineering; Professor of Theoretical and Applied Mechanics* (1962), 1948.

Samuel Josephus Weese, B.S., M.A., *Associate Professor of Dairy Science; Associate Dairy Scientist, Agricultural Experiment Station* (1951), 1945.

Ruth Weibel, M.S., *Instructor in Home Economics* (1962).

James Alexander Welch, B.S.Agr., Ph.D., *Professor of Animal Science; Animal Husbandman, Agricultural Experiment Station* (1960), 1952.

John Thomas Welch, A.B., D.D.S., *Assistant Professor of Oral Surgery, School of Dentistry* (1959).

Lloyd Washington Welden, B.S., A.M., *Professor of Speech; Executive Secretary, W. Va. Interscholastic Forensic League; Director of Public Address Area* (1952), 1948.

Neil J. Weller, Ph.D., *Assistant Professor of Sociology* (1958).

Dana Wells, A.B., M.A., Ph.D., *Professor and Chairman of Geology* (1961), 1930.

Verna Lillian Wells, Ph.C., *Assistant to the Dean, College of Arts and Sciences* (1961), 1936.

William Arch Welton, A.B., M.D., *Assistant Professor and Chairman of Dermatology* (1962), 1961.

Chin-yung Wen, B.S., M.S.Ch.E., Ph.D., *Associate Professor of Chemical Engineering* (1959), 1954.

Blaine Stemple West, B.S.C.E., *Instructor in Theoretical and Applied Mechanics* (1960). (Resigned January 31, 1962).

Thomas Creed Westfall, A.B., M.S., Ph.D., *Instructor in Pharmacology* (1962).

Kyle Chester Westover, B.S., M.S., Ph.D., *Professor of Horticulture; Horticulturist, Agricultural Experiment Station* (1945), 1921.

Harry Grove Wheat, A.B., A.M., Ph.D., *Professor Emeritus of Education* (1956), 1935.

David Twining Whitcomb, B.S., M.D., *Instructor in Psychiatry* (1962).

John Lynn White, B.S.M.E., *Instructor in Theoretical and Applied Mechanics* (1960). (Resigned May 31, 1962).

Ralph Milton White, A.B., LL.B., M.A., *Assistant Professor of Political Science* (1957), 1942.

Waldo D. Whitney, A.B., M.S.S.W., *Associate Professor of Social Work; Co-Administrator, University Counseling Center* (1957), 1951. (Resigned July 26, 1962).

Frederick Rendell Whittlesey, B.A., M.D., *Assistant Professor* (part-time) *of Medicine* (1940), 1930.

Mary Kathryne Wiedebusch, B.S., *Instructor in Women's Physical Education* (1955).
Ella B. Wiese, *Executive Housekeeper, University Hospital* (1960).
James Hugh Wiley, A.B., B.S., M.D., *Instructor in Orthopedic Surgery* (1961).
Dale L. Wilhelm, B.S., M.S., Ph.D., *Associate Professor of Chemistry* (1959), 1954.
John Rodney Williams, B.A., M.A., Ph.D., *Professor and Chairman of Political Science* (1961), 1949.
Lawrence Williams, A.B., B.S., M.D., *Resident in Orthopedic Surgery* (1961).
Leah Ann Williams, A.B., M.S., *Instructor in Biology* (1959).
T. Walley Williams, B.S., M.S., Ph.D., *Professor and Chairman of Microanatomy and Organology* (1957), 1944.
Douglas Bleecker Williamson, B.A., M.A., Ed.D., *Associate Professor of Physics* (1960), 1946.
Kent Lee Williamson, *Technician in Pharmacy* (1961).
Herbert J. Wilner, B.A., M.H.L., D.H.L., *Instructor* (part-time) *in Hebrew* (1962).
Charles Vinyard Wilson, B.S.Agr., M.S., *Professor Emeritus of Animal Husbandry; Animal Husbandman Emeritus, Agricultural Experiment Station* (1952), 1919. (Deceased April 15, 1963).
Donald Edward Wilson, Capt., B.A., M.A., *Assistant Professor and Administrative Officer of Air Science* (1958). (Resigned July 23, 1962).
Harold Albert Wilson, B.S., M.S., Ph.D., *Professor of Bacteriology; Bacteriologist, Agricultural Experiment Station* (1957), 1947.
James Edward Wilson, Jr., A.B., M.D., *Clinical Instructor in Surgery* (1961).
John Dennis Wilson, M.D., *Clinical Associate Professor of Radiology* (1962).
John Frederick Wilson, A.B., D.D.S., *Instructor in Operative Dentistry* (1959), 1958.
Margaret Ann Wilson, B.S., M.Sc., Ph.D., *Director, Dietetic Department, University Hospital* (1960).
Robert Stringer Wilson, B.A., M.D., *Clinical Instructor in Surgery* (*Orthopedics*) (1961).
Quintus C. Wilson, B.S., M.A., Ph.D., *Dean, School of Journalism; Professor of Journalism* (1961).
Roderick Wayne Wilson, A.B., M.S., *Instructor in Physics* (1960).
May Landstreet Wilt, B.S., M.A., *Instructor in Education; Teacher, University High School* (1931), 1925.
Audrey Edith Windemuth, B.S., M.N.A., *Director of Nursing Service, University Hospital; Associate Clinical Professor of Nursing* (1961), 1960.
Anthony Winston, B.S., M.S., Ph.D., *Assistant Professor of Chemistry* (1959).
Louise Farrell Winterbottom, *Law Librarian* (retired), *College of Law* (1959), 1924.
Albert F. Wojcik, B.S., M.S., *Assistant Professor of Pharmacy* (1949), 1945.
Joseph Francis Wolfe, *Flight Instructor in Aero-Space Engineering* (1958).
Wanda Larue Wolfe, *Technician, Clinical Laboratories, University Hospital* (1961).
Darrell Elroy Wood, B.M., M.M., *Teacher, University High School* (1959).
John Kenneth Wood, B.M., M.M., *Associate Professor of Music* (1941), 1928.
Yvonne Mildred Woofter, A.B., M.A., *Instructor in Education; Teacher, University High School* (1941), 1936.
Donald Thompson Worrell, B.S.E.E., M.S.E.E., *Professor of Theoretical and Applied Mechanics; Engineer, Mechanics, Engineering Experiment Station* (1955), 1941.
Fred Earl Wright, II, B.S., M.A., *Assistant Professor of Finance* (1955), 1951.
Hortense G. Wright, B.S., *Food Service Supervisor, Dietetic Department, University Hospital* (1962).
Phillip Jay Wright, B.S., M.D., *Resident in Internal Medicine* (1962), 1961.
Pamela Nicholson Wrinch, A.B., M.A., Ph.D., *Visiting Assistant Professor of Political Science* (1962).
Margaret Ann Yarbrough, R.N., *Nurse, University Health Service, Medical Center* (1961), 1953.

ALLEN E. YEAKEL, B.S., M.D., *Assistant Professor of Anesthesiology* (1961).
ELISABETH STELLE YEARICK, B.S., M.S., PH.D., *Associate Professor of Nutrition (Home Economics); Associate Nutritionist, Agricultural Experiment Station* (1960).
CHARLES PETER YOST, B.S., M.S., PH.D., *Associate Professor of Physical Education; Chairman of Safety Education* (1958), 1946.
DOROTHY DELIA YOST, R.N., A.B., B.S., *Teaching Assistant in Medical-Surgical Nursing* (1962).
DAVID ALDER YOUNG, B.S., *Assistant Publicity Director, Intercollegiate Athletics* (1962).
HAROLD G. YOUNG, B.S., M.D., *Clinical Associate Professor of Surgery* (1961).
JAMES ROBERT YOUNG, B.A., M.A., *Assistant Professor of Journalism* (1954).
JOHN STANLEY ZAWACKI, B.S., M.S., *Instructor in Sociology* (1961).
BERNARD ZIMMERMANN, PH.D., M.D., *Professor and Chairman of Surgery* (1960).

THE CLASSIFIED ENROLLMENT

A. The Summer Session, 1962

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Econ	53	21	74	42	6	48	29	5	34	6	5	11	130	37	167	1	4	5	131	41	172
Arts and Sciences	140	63	203	102	84	186	120	89	209	51	34	85	413	270	683	47	44	91	460	314	774
Commerce	69	4	73	29	.....	29	.....	.....	.....	.....	.....	.....	98	4	102	1	.....	1	99	4	103
Education	36	63	99	12	38	50	.....	.....	.....	.....	.....	.....	48	101	149	6	9	15	54	110	164
Engineering	45	.....	45	87	1	88	55	.....	55	23	.....	23	210	1	211	4	1	5	214	2	216
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,091	626	1,717	202	165	367	1,293	791	2,084
Journalism	7	3	10	1	.....	1	.....	.....	.....	.....	.....	.....	8	3	11	.....	.....	.....	8	3	11
Mines	5	.....	5	10	.....	10	3	.....	3	.....	.....	.....	18	.....	18	.....	.....	.....	18	.....	18
Music	9	10	19	10	7	17	8	7	15	.....	1	1	27	25	52	.....	.....	.....	27	25	52
Nursing	.....	.....	.....	.....	3	3	.....	9	9	.....	3	3	.....	15	15	.....	9	9	.....	24	24
Physical and Health Education, Recreation and Safety	47	9	56	26	13	39	32	7	39	5	6	11	110	35	145	3	1	4	113	36	149
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	1	.....	1
Parkersburg Branch	1	2	3	.....	4	4	6	4	10	13	9	22	20	19	39	3	10	13	23	29	52
TOTAL	412	175	587	319	156	475	253	121	374	98	58	156	2,174	1,136	3,310	267	243	510	2,441	1,379	3,820
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	3	.....	3	.....	.....	.....	1	.....	1	4	.....	4	8	.....	8	.....	.....	.....	8	.....	8
Law	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Medicine	1	11	12	.....	1	1	.....	.....	.....	2	1	3	3	13	16	.....	.....	.....	3	13	16
Pharmacy	8	3	11	2	1	3	1	.....	1	1	.....	1	12	4	16	.....	.....	.....	12	4	16
TOTAL	12	14	26	2	2	4	2	.....	2	7	1	8	23	17	40	.....	.....	.....	23	17	40
GRAND TOTAL	424	189	613	321	158	479	255	121	376	105	59	164	2,197	1,153	3,350	267	243	510	2,464	1,396	3,860

B. The First Semester (September to January), 1962-63

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Econ	139	48	187	119	45	164	120	36	156	146	44	190	524	173	697	16	4	20	540	177	717
Arts and Sciences	220	107	327	344	167	511	573	417	990	639	468	1,107	1,776	1,159	2,935	42	40	82	1,818	1,199	3,017
Commerce	149	5	154	116	5	121	.....	.....	.....	.....	.....	.....	265	10	275	1	.....	1	266	10	276
Education	65	122	187	38	120	158	.....	.....	.....	.....	.....	.....	103	242	345	1	3	4	104	245	349
Engineering	199	1	200	279	2	281	305	1	306	381	1	382	1,164	5	1,169	4	.....	4	1,168	5	1,173
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	784	244	1,028	75	70	145	859	314	1,173
Journalism	14	7	21	8	12	20	.....	.....	.....	.....	.....	.....	22	19	41	.....	.....	.....	22	19	41
Mines	6	.....	6	25	.....	25	13	.....	13	15	.....	15	59	.....	59	.....	.....	.....	59	.....	59
Music	16	17	33	22	14	36	18	17	35	17	20	37	73	68	141	.....	.....	.....	73	68	141
Nursing	.....	1	1	.....	23	23	.....	38	38	.....	63	63	.....	125	125	.....	26	26	.....	151	151
Physical and Health Education, Recreation and Safety	89	21	110	78	32	110	79	34	113	70	34	104	316	121	437	.....	1	1	316	122	438
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62	2	64	13	.....	13	75	2	77
Parkersburg Branch	2	1	3	2	3	5	21	11	32	57	37	94	82	52	134	14	22	36	96	74	170
TOTAL	899	330	1,229	1,031	423	1,454	1,129	554	1,683	1,325	667	1,992	5,230	2,220	7,450	166	166	332	5,396	2,386	7,782
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	22	1	23	16	.....	16	33	3	36	43	6	49	114	10	124	.....	.....	.....	114	10	124
Law	.....	.....	.....	47	.....	47	46	1	47	80	2	82	173	3	176	.....	.....	.....	173	3	176
Medicine	45	12	57	39	15	54	53	7	60	53	6	59	190	40	230	.....	.....	.....	190	40	230
Pharmacy	25	6	31	2	.....	2	3	1	4	24	6	30	54	13	67	.....	.....	.....	54	13	67
TOTAL	92	19	111	104	15	119	135	12	147	200	20	220	531	66	597	.....	.....	.....	531	66	597
GRAND TOTAL	991	349	1,340	1,135	438	1,573	1,264	566	1,830	1,525	687	2,212	5,761	2,286	8,047	166	166	332	5,927	2,452	8,379

C. The Second Semester (February to June), 1962-63

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Econ	115	46	161	110	43	153	88	35	123	127	41	168	440	165	605	16	2	18	456	167	623
Arts and Sciences	214	113	327	320	159	479	491	365	856	567	432	999	1,592	1,069	2,661	26	36	62	1,618	1,105	2,723
Commerce	150	4	154	115	4	119	.....	.....	.....	.....	.....	.....	265	8	273	1	.....	1	266	8	274
Education	63	133	196	46	120	166	.....	.....	.....	.....	.....	.....	109	253	362	1	1	2	110	254	364
Engineering	201	2	203	260	1	261	253	1	254	337	1	338	1,051	5	1,056	4	.....	4	1,055	5	1,060
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	769	220	989	89	56	145	858	276	1,134
Journalism	17	10	27	13	14	27	.....	.....	.....	.....	.....	.....	30	24	54	.....	.....	.....	30	24	54
Mines	12	.....	12	19	.....	19	11	.....	11	11	.....	11	53	.....	53	.....	.....	.....	53	.....	53
Music	14	19	33	21	14	35	18	18	36	16	19	35	69	70	139	1	.....	1	70	70	140
Nursing	.....	.....	.....	.....	23	23	.....	37	37	.....	52	52	.....	112	112	.....	32	32	.....	144	144
Physical and Health Education, Recreation and Safety	78	23	101	81	33	114	97	33	130	69	29	98	325	118	443	2	.....	2	327	118	445
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53	2	55	7	.....	7	60	2	62
Parkersburg Branch	.....	2	2	3	2	5	24	13	37	43	25	68	70	42	112	13	15	28	83	57	140
TOTAL	864	352	1,216	988	413	1,401	982	502	1,484	1,170	599	1,769	4,826	2,088	6,914	160	142	302	4,986	2,230	7,216
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	23	1	24	16	.....	16	31	3	34	41	7	48	111	11	122	.....	.....	.....	111	11	122
Law	.....	.....	.....	42	.....	42	45	1	46	65	2	67	152	3	155	.....	.....	.....	152	3	155
Medicine	44	11	55	40	14	54	51	7	58	54	7	61	189	39	228	.....	.....	.....	189	39	228
Pharmacy	25	5	30	.....	.....	.....	3	1	4	26	5	31	54	11	65	.....	.....	.....	54	11	65
TOTAL	92	17	109	98	14	112	130	12	142	186	21	207	506	64	570	.....	.....	.....	506	64	570
GRAND TOTAL	956	369	1,325	1,086	427	1,513	1,112	514	1,626	1,356	620	1,976	5,332	2,152	7,484	160	142	302	5,492	2,294	7,786

D. The Academic Year (September to June), 1962-63

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Econ	153	53	206	116	47	163	113	37	150	146	44	190	528	181	709	17	4	21	545	185	730
Arts and Sciences	244	124	368	349	170	519	561	400	961	635	481	1,116	1,789	1,175	2,964	56	57	113	1,845	1,232	3,077
Commerce	182	4	186	121	4	125	.....	.....	.....	.....	.....	.....	303	8	311	2	.....	2	305	8	313
Education	72	148	220	49	126	175	.....	.....	.....	.....	.....	.....	121	274	395	2	3	5	123	277	400
Engineering	224	2	226	278	1	279	280	1	281	363	1	364	1,145	5	1,150	6	.....	6	1,151	5	1,156
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	938	291	1,229	119	96	215	1,057	387	1,444
Journalism	18	10	28	14	14	28	.....	.....	.....	.....	.....	.....	32	24	56	.....	.....	.....	32	24	56
Mines	12	.....	12	21	.....	21	12	.....	12	12	.....	12	57	.....	57	.....	.....	.....	57	.....	57
Music	16	20	36	23	14	37	18	19	37	18	20	38	75	73	148	1	.....	1	76	73	149
Nursing	.....	.....	.....	.....	24	24	.....	38	38	.....	56	56	.....	118	118	.....	41	41	.....	159	159
Physical and Health Education, Recreation and Safety	87	26	113	92	36	128	112	34	146	78	35	113	369	131	500	2	1	3	371	132	503
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	74	2	76	12	.....	12	86	2	88
Parkersburg Branch	2	2	4	3	4	7	32	14	46	63	37	100	100	57	157	20	29	49	120	86	206
TOTAL	1,010	389	1,399	1,066	440	1,506	1,128	543	1,671	1,315	674	1,989	5,531	2,339	7,870	237	231	468	5,768	2,570	8,338
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	23	1	24	16	.....	16	31	3	34	43	7	50	113	11	124	.....	.....	.....	113	11	124
Law	.....	.....	.....	49	.....	49	45	1	46	77	2	79	171	3	174	.....	.....	.....	171	3	174
Medicine	45	11	56	41	15	56	52	7	59	54	7	61	192	40	232	.....	.....	.....	192	40	232
Pharmacy	25	6	31	.....	.....	.....	3	1	4	26	5	31	54	12	66	.....	.....	.....	54	12	66
TOTAL	93	18	111	106	15	121	131	12	143	200	21	221	530	66	596	.....	.....	.....	530	66	596
GRAND TOTAL	1,103	407	1,510	1,172	455	1,627	1,259	555	1,814	1,515	695	2,210	6,061	2,405	8,466	237	231	468	6,298	2,636	8,934

E. The Summary for 1962-63

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Econ	162	62	224	117	47	164	115	38	153	146	45	191	540	192	732	18	6	24	558	198	756
Arts and Sciences	278	142	420	360	183	543	573	412	985	643	486	1,129	1,854	1,223	3,077	97	95	192	1,951	1,318	3,269
Commerce	200	4	204	122	4	126	.....	.....	.....	.....	.....	.....	322	8	330	3	.....	3	325	8	333
Education	87	167	254	50	134	184	.....	.....	.....	.....	.....	.....	137	301	438	8	10	18	145	311	456
Engineering	230	2	232	280	1	281	282	1	283	365	1	366	1,157	5	1,162	7	1	8	1,164	6	1,170
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,709	799	2,508	288	247	535	1,997	1,046	3,043
Journalism	20	10	30	14	14	28	.....	.....	.....	.....	.....	.....	34	24	58	.....	.....	.....	34	24	58
Mines	15	.....	15	22	.....	22	12	.....	12	12	.....	12	61	.....	61	.....	.....	.....	61	.....	61
Music	16	22	38	23	14	37	18	20	38	18	20	38	75	76	151	1	.....	1	76	76	152
Nursing	.....	.....	.....	.....	24	24	.....	39	39	.....	57	57	.....	120	120	.....	41	41	.....	161	161
Physical and Health Education, Recreation and Safety	95	27	122	94	38	132	117	34	151	78	37	115	384	136	520	5	2	7	389	138	527
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	74	2	76	12	.....	12	86	2	88
Parkersburg Branch	3	2	5	3	5	8	35	17	52	70	38	108	111	62	173	23	34	57	134	96	230
TOTAL	1,106	438	1,544	1,085	464	1,549	1,152	561	1,713	1,332	684	2,016	6,458	2,948	9,406	462	436	898	6,920	3,384	10,304
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	24	1	25	16	.....	16	31	3	34	43	7	50	114	11	125	.....	.....	.....	114	11	125
Law	.....	.....	.....	49	.....	49	45	1	46	77	2	79	171	3	174	.....	.....	.....	171	3	174
Medicine	45	12	57	41	15	56	52	7	59	54	7	61	192	41	233	.....	.....	.....	192	41	233
Pharmacy	26	7	33	.....	.....	.....	3	1	4	26	5	31	55	13	68	.....	.....	.....	55	13	68
TOTAL	95	20	115	106	15	121	131	12	143	200	21	221	532	68	600	.....	.....	.....	532	68	600
GRAND TOTAL	1,201	458	1,659	1,191	479	1,670	1,283	573	1,856	1,532	705	2,237	6,990	3,016	10,006	462	436	898	7,452	3,452	10,904

E. (Cont'd.) Extension, Short Courses, and Conferences

	Men	Women	Total
UNIVERSITY EXTENSION OF COLLEGIATE GRADE:			
University Extension of Collegiate Grade (Not counted elsewhere)	764	903	*1,670
University Resident Enrollment	7,452	3,452	10,904
Total University Enrollment of Collegiate Grade	8,216	4,358	12,574
*This number represents those persons enrolled only in extension courses of collegiate grade.			
CONFERENCES:			
Administrative Conference on New Media in Education			42
Area Development Agents on Business Locations & Business Management			11
Conservation Education Workshop			43
Economic Education Workshop			60
Elementary School Music Workshop			7
Farmers Home Administration Workshop			11
Industrial Engineering Conference			150
Joint Staff			7
Labor Management Conference			60
Life Science Institute			20
Northern Federation Visual Aids Workshop			75
Personnel Workshop			26
Professional West Virginia Band Masters Clinic			125
Rural Area Development Rural Area Agent Training Conference			11
School of Banking			130
Tax Institute			130
West Virginia Potato Growers Association			30
Total			938
EXTENSION: (Non Collegiate Grade)			
Coal Mining			10
Coal Preparation			5
Hydraulics			27
Total			42
SHORT COURSES AT MORGANTOWN:			
Appalachian Gas Measurement Short Course			695
Appalachian Underground Corrosion Short Course			626
Forced Warm Air Heating and Air Conditioning			105
Fire Department Administration Short Course			50
Fire Department Ladder Short Course			7
Fire Prevention Short Course			50
Industrial Fire Safety Short Course			10
Landscape Architecture			25
West Virginia State Fire School			87
Total			1,655
GRAND TOTAL			15,209

Resident Enrollment, 1962-63, by West Virginia Counties

Barbour	79	Mingo	60
Berkeley	96	Monongalia	1,865
Boone	45	Monroe	32
Braxton	55	Morgan	42
Brooke	133	Nicholas	79
Cabell	94	Ohio	298
Calhoun	14	Pendleton	41
Clay	20	Pleasants	31
Doddridge	20	Pocahontas	59
Fayette	141	Preston	216
Gilmer	32	Putnam	31
Grant	56	Raleigh	176
Greenbrier	131	Randolph	126
Hampshire	35	Ritchie	47
Hancock	221	Roane	55
Hardy	39	Summers	37
Harrison	517	Taylor	72
Jackson	52	Tucker	37
Jefferson	48	Tyler	43
Kanawha	941	Upshur	64
Lewis	64	Wayne	23
Lincoln	16	Webster	42
Logan	77	Wetzel	107
Marion	487	Wirt	20
Marshall	115	Wood	477
Mason	44	Wyoming	62
McDowell	119		
Mercer	131	TOTAL	8,089
Mineral	125		

By States and U.S. Possessions

Alabama	3	Nebraska	6
Alaska	1	New Hampshire	2
Arizona	2	New Jersey	153
Arkansas	6	New Mexico	3
California	8	New York	131
Colorado	4	North Carolina	13
Connecticut	16	Ohio	235
Delaware	8	Oklahoma	2
District of Columbia	16	Oregon	4
Florida	27	Pennsylvania	1,584
Georgia	4	Puerto Rico	3
Illinois	10	South Carolina	6
Indiana	5	South Dakota	1
Iowa	1	Tennessee	7
Kansas	2	Texas	2
Kentucky	17	Utah	1
Louisiana	2	Vermont	1
Maine	3	Virginia	85
Maryland	224	Washington	3
Massachusetts	11	West Virginia	8,089
Michigan	19	Wisconsin	8
Minnesota	3		
Missouri	3	TOTAL	10,741

By Foreign Countries

Afghanistan	1	Italy	2
Australia	1	Japan	1
Brazil	1	Korea	10
Canada	7	Liberia	3
Chile	1	Nigeria	2
China	38	Northern Rhodesia	1
Colombia	2	Pakistan	1
Costa Rica	1	Panama	2
Cuba	3	Paraguay	1
Egypt	2	Peru	1
England	4	Philippines	3
Estonia	1	Sweden	1
France	1	Syria	7
Germany	4	Tanganyika	18
Greece	6	Turkey	7
Hong Kong	1	Venezuela	1
Hungary	1		
India	12	TOTAL	163
Indonesia	1		
Iran	10	TOTAL UNIVERSITY ENROLLMENT 1962-63	10,904
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Israel	2		

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1963

June 1, Saturday ..... Alumni Day
June 2, Sunday ..... Baccalaureate Exercises
June 3, Monday ..... Commencement
June 10, Monday ..... Registration for First Term, Summer Session
June 11, Tuesday ..... First Classes, First Term, Summer Session
July 4, Thursday ..... Classes will meet on Independence Day
July 17, Wednesday ..... English Proficiency Examination
July 19, Friday ..... Close of First Term, Summer Session
July 20, Saturday ..... Registration for Second Term, Summer Session
July 22, Monday ..... First Classes, Second Term, Summer Session
August 22, Thursday ..... Close of Second Term, Summer Session
September 9, Monday, to September 15, Sunday, incl. ... Freshman Week Program
September 13, Friday, and September 14, Sat. .. General Registration, First Semester
September 16, Monday ..... First Classes, First Semester
October 8, Tuesday ..... Meeting of University Senate
October 10, Thursday ..... English Proficiency Examination
November 4, Monday ..... Mid-Semester Reports Due
November 27, Wednesday, to December 1, Sunday, incl. .... Thanksgiving Recess
December 21, Saturday noon, to January 5, Sunday, incl. ..... Christmas Recess

1964

January 18, Saturday ..... Last Classes, First Semester
January 20, Mon., to January 25, Sat. ..... Final Examinations for First Semester
January 31, Friday, and February 1, Sat. .. General Registration for Second Semester
February 3, Monday ..... First Classes, Second Semester
February 7, Friday ..... West Virginia University Day
February 11, Tuesday ..... Meeting of the University Senate
February 20, Thursday ..... English Proficiency Examination
March 23, Monday ..... Mid-Semester Reports Due
March 27, Friday, to April 1, Wednesday, incl. ..... Easter Recess
May 12, Tuesday ..... Meeting of University Senate
May 20, Wednesday ..... Last Classes, Second Semester
May 21, Thurs., to May 27, Wed., incl. ... Final Examinations for Second Semester
May 30, Saturday ..... Alumni Day
May 31, Sunday ..... Baccalaureate Exercises
June 1, Monday ..... Commencement